GLEANINGS IN BEE CULTURE

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EDITORIAL

BY E. R. ROOT.

REPORTS from over the country regarding clover are very favorable. While the drouth of last fall was severe, the bountiful rains of this spring and early summer have more than made up. Just as we are going to press, the clovers are coming out in bloom in our Northern States.

THE discriminating reader will notice that we are now printing GLEANINGS on a new and larger face of type. Our heavy runs wear out our type faces in about a year's time. At the present rate we shall be obliged to renew our type much oftener than we have been doing.

SMALLPOX AT DR. MILLER'S HOME TOWN.

THERE is an epidemic of smallpox at Marengo, Ill., so Dr. Miller writes, seventy-two cases in all. All public places are closed and business is crippled. We trust that conditions will not get so bad that we shall not be able to draw upon Dr. Miller's Straw pile. In the meantime he is keeping quietly at home tending to business.

IS A BALLED QUEEN EVER STUNG?

SOME little time ago ye editor and Dr. Miller had a little controversy as to whether worker-bees ever sting a laying queen while balling her. We mentioned the matter to neighbor H., who used to rear thousands of queens for us. "Why," said he, "bees not sting the queen in the act of balling? To be sure, they do. I have pulled many a ball apart, and found one and sometimes two stings in the almost lifeless body of the queen." He was of the opinion that a queen that has been balled and killed dies more from stings than from actual suffocation.

THE QUALITY OF TEXAS CATCLAW HONEY.

MR. LOUIS H. SCHOLL, in his department in this issue, page 359, criticises somewhat our statement in the A B C of Bee Culture, wherein we describe the Texas catclaw as being equal to the "ordinary" white honey of the North. The objection seems to be to the use of the word "ordinary," as if it referred to a very common kind or medium grade of honey. When we speak of honey as being equal to "ordinary" white, we mean that we are putting it in the very front rank. But we have substituted, in place of the word "ordinary," the word "best" in the coming edition of the A B C book. This will eliminate the apparent misunderstanding on the part of our Texas readers.

AUTOMOBILES FOR OUT-APIARY SERVICE.

WE have been getting more or less inquiries of late regarding the practicability of automobiles for work in the out-apiary, and whether there were not a low-priced machine that would be reliable. As our readers know, we have been using automobiles for our out-yard work more or less for several years. One machine, a two-cylinder Reo, five passenger, that we bought three years ago, is still doing good service. It has carried two families about for pleasure, and has made numerous trips to outyards. It has been in service almost every day for three years, winter and summer. To-day it will climb hills, and pull as well as it ever did; and during all of this time the repairs, including the tires, did not exceed $60.00 a year. When it is remembered that tires are worth approximately $25.00 apiece, and are supposed to last from one to two years, this is not bad. We have run a single-cylinder Reo for the same length of time with equal satisfaction. If we could have eliminated the tire repairs and replacement, the expense of operating, outside of gasoline, would have been scarcely more than the up-keep of a harness and buggy. The cost of operating for gasoline alone is anywhere from half a cent to one cent a mile, depending on the condition of the roads and the load carried. The oil has been an insignificant item. This comparison does not take into account that an auto will do five times the work in a day that a horse and buggy can for the same time.

There is on the market a couple of reliable high-wheeled automobiles that do not use pneumatic tires that are doing good service. There are several makes of this type of machine that are—well, worse than nothing. We are looking up the records of a couple of the best high wheelers, and hope later on to give our readers the benefit of this investigation.

A high-wheeled automobile eliminates the cost of tires, and, besides, it will run in the

mud almost as well as on dry ground. The pneumatic-tired machine is not suitable to drive in muddy roads. It skids and slides to a considerable extent, while on the other hand the high-wheeled machine holds its place in the road, and, what is more, has always good traction.

THE SEASON IN CALIFORNIA FALLING BELOW EARLIER EXPECTATIONS.

RIGHT after our last issue we wrote to several bee-keepers in California, asking them to give us by return mail information concerning the honey prospects up to date.

Mr. Root:—In answer to yours of May 26 I will say that information I have just recived regarding conditions for honey crop along the coast is very unfavorable—cloudy or cold until May 29, then three *hot* days, which will shorten the crop very materially. I am sorry, but it is another golden dream floating before our eyes—half a crop or less when we expected a bumper. Here in Imperial we shall probably have a normal crop; but this section is only a drop in the bucket.
Imperial, Cal., June 3. J. W. GEORGE.

Mr. E. R. Root:—Yours of May 26th is received in regard to the honey crop. I still think it will be very light—not more than half what we call a full crop. In some localities there may be a full crop, 200 pounds to the hive, spring count; but there are more places where there will not be 50 pounds to the hive.

Buyers are offering 5½ cts. now; but sellers are asking 6, and I think the white honey will bring that before we are done extracting, the first of June.

We had a change in the weather from too cool for the bees to do well to so hot that it injured the sage, so that it will not last as long as it would if the weather were cooler. We extracted the home apiary to-day, and took out about three tons. L. E. MERCER.
Newhall, Cal., June 3.

Notwithstanding the season in California is falling below earlier expectations, we have information to show that there will be considerable honey produced there, much of which will find its way to the East.

DR. WILEY CHAMPIONED BY SOME STRONG MEN.

EVERY now and then we run across Congressmen who are not afraid to speak out in highest praise of Dr. Wiley. Some little time ago, when some of his enemies were trying to degrade him, and, if possible, get him out of office, we made mention of the fact in these columns, and requested our subscribers to write to their Representatives and Senators in Congress, requesting them to do every thing they could to protect Dr. Wiley. One of our subscribers, Mr. James E. McClellan, of Santa Anna, Texas, did so, and received back this letter from Congressman Slayden:

Mr. J. E. McClellan:—Your letter of recent date has been read with much interest. I rather suspect that some manufacturers of food products would like to see Dr. Wiley removed from his position, but I hardly think they can accomplish their purpose. I am sure I hope they can not.

Personally I have always supported him in his campaigns against impure foods, injurious drugs, and dishonest, lying labels, and I shall continue to do so. The more fully people come to understand the nature of the work Dr. Wiley is doing the more largely he will be endorsed. JAMES L. SLAYDEN.
Washington, D. C., June 3.

It is a pleasure to know that there are some Congressmen like Hon. James L. Slayden who are willing to speak out in praise of Dr. Wiley's splendid work in the interest of pure food.

BUTCHER-KNIVES FOR UNCAPPING; THE THICKNESS OF THE BLADES.

THE uncapping-knives with only one cutting edge, illustrated and described in Mr. Scholl's department, page 359 of this issue, look as if they might do very effective work, especially where one uses only the down stroke. The only objection we see to them is that, if they are like common butcher-knives, the blade being thin, the sheet of cappings, even after they are cut, might cling to the surface of the comb, whereas in the case of a thick-bladed knife with a beveled edge like the Bingham, the cappings as they are sliced are diverted away from the surface Mr. Scholl in a previous issue, page 53, explains that in the downward stroke the cappings fall away from the knife, since the frame is tilted slightly forward.

It would be perfectly practicable to make a single-edge knife with the handle in the same plane as the blade; but such a knife, in our judgment, should be thick with a beveled edge so that the blade, while cutting, would be at an angle instead of lying flat on the comb surface, as would be the case when a thin-bladed butcher-knife of ordinary type is used.

The old original Novice honey-knife, which we introduced nearly forty years ago, while it had an offset handle, the same as the Bingham, had a thin narrow blade. With this we did a large amount of uncapping; but in later years we discovered that it was not nearly as effective as a thick beveled-edge blade, because it allowed the cappings to come back in contact with the surface of the comb and stick. When Bingham & Hetherington got out their thick-bladed knife they saw the desirability of having a thick knife with a *beveled edge*, so that the blade would be at an angle with the comb while cutting.

We should like to have this question discussed, because we regard it as very important, and if it is possible to make improvements in our standard tools for bee-keepers we ought to make them. There is such a thing as getting into a rut without ever suspecting that there is more and better ground somewhere else.

AN EXPERIMENT IN SHIPPING COMB HONEY BY EXPRESS IN THE NEW CORRUGATED-PAPER CASES; THE OPINION OF A COMMISSION MAN.

As announced in our last issue, page 328, we sent 24 sections in one of the J. E. Crane corrugated-paper shipping-cases by express to Hildreth & Segelken, New York. We well knew it would be a rather severe test; but as that test involved only the price of 24 sections we decided to take the risk for the benefit of our subscribers. The following from Hildreth & Segelken will explain:

Mr. E. R. Root:—We this morning received the honey which you sent us in the new pasteboard box with the partitions. It appeared to be in good order when we received it; but when we cut the strings and opened the box we found that half of the combs were entirely smashed up. Six or seven of them were broken

loose from the sections, and only about five of them were in good order; but, of course, these were all saturated with honey. As we said before, the box did not show any signs of leakage or saturation before we opened it, which is probably due to the fact that the heavy pasteboard absorbed the honey.

We hardly think that this box will answer the purpose for shipping comb honey in small quantities—that is, by the single crate or case, or even from five to fifty cases. Another point which we think is against this box is that it takes a lot of cord to tie it up, and also considerable labor. The wooden crates now used are quite easy to open by simply forcing off the cover and then nailing it down again. This pasteboard box would have to be tied up with strong cord, which would be rather a task to open; and in order to examine the honey the cord would have to be cut and new cord put in its place. We have no fault to find with the box whatsoever, and the idea strikes us as a very good one—especially so if the box could be furnished at a lower price than a wooden crate.

We think this box would answer the purpose if the bee-keepers would put it in a carrier of, say, eight crates each, the same as are used now for the other crates; but we do not believe it would answer the purpose in sending out in small quantities without being put in carriers. Can not an improvement be made on this box by using fasteners on the two sides instead of tying them up with cord, and at the same time make a better-appearing case?

Let us suggest the following: Why not adopt the partitions in the wooden crate, by which we mean to use the crates that bee-keepers are using now, and use this corrugated partition to fill the corners? Thus every corner would be protected; and if one or two should happen to break down it would not spoil or break down the others. Of course, we admit that it would bring the cost of the honey up a little higher; but we should think that these partitions could be furnished at, say, 3 cents, possibly 4, for a crate holding 24 combs. This would mean an additional expense of only about ¼ of a cent more per pound, which would be insignificant to the producer, for he would feel more sure that his honey would arrive in good order. This is only a suggestion of ours, but we thought we would put it before you in case you desire to take it up and approve of it. Of course, this is meant only for unglassed sections. Where bee-keepers glass their honey or use pasteboard cartons it would not be necessary.

Any other points we have omitted, kindly write about. HILDRETH & SEGELKEN.

New York, May 27.

We have observed that express delivered to any large city receives rougher treatment than that which goes to smaller places. The amount of express matter is necessarily large, and the time for its delivery from the car on to the truck at the city of destination is very limited. As a natural result the express men sometimes *throw* the stuff off, and very often it tumbles from the truck on to the depot platform. If the container holds fragile goods without in anywise indicating the character of the contents, something happens; and in this case the sections were badly broken. It is evident that these corrugated cases will not be strong enough to stand express shipment alone.

We think, however, they might go by freight, provided a considerable shipment was made up; but as a matter of precaution we would advise the use of carriers; and when these are used we feel quite certain that the breakage and leakage in these paper containers will be much less than in the corresponding wooden packages. However, the latter would carry the honey just as safely, provided there was a sheet of corrugated paper at top and bottom, and cross-partitions of the same material as suggested, so that each section may be put in a space by itself. Possibly this will be the best solution of the difficulty.

STRAY STRAWS

BY DR. C. C. MILLER, MARENGO, ILL.

"BLOCKS of WOOD on which the bees may alight" are advised for watering-places, p. 296. Better advise cork chips—ever so much better. [Are you sure they are "ever so much better?" Corks are much more expensive, and blocks of wood can be obtained anywhere, and they are almost as good.—ED.]

CLIP A QUEEN on only one side. She will tumble around on the ground, and make poorer progress than one with all wings cut. Besides, the wings on one side should be left to catch her by. Cut off half or more of *both* wings on one side. If you leave the smaller wing whole you can not tell at a glance whether she is clipped or not.

A CORRESPONDENT says, "The colony of my best queen is strong, but somewhat troubled with paralysis. Shall I breed from her?" I don't know. I think I'd use her for part of my queens, and watch results. What do you say, Mr. Editor? [No, sir! We would kill that queen instanter. We wouldn't breed from her any more than we would scatter foul-broody honey in the apiary.—ED.]

W. A. PRYAL, p. 339, speaks of scout bees working at empty hives *a week or more*. I don't know that I ever saw before mentioned in print that scouts would work so long before swarming. But I have noticed the fact a good many times. [Why, doctor, if we are not mistaken there have been a good many reports in these columns where scout bees have been out of the hive a week or more before the swarm actually came forth. —ED.]

OUTDOOR-WINTERED colonies further along, page 332. I think it is the rule that outdoor bees start brood a month or so earlier than cellared bees. [That is true in a sense; but in your locality you winter indoors. If you could get better and stronger colonies in the spring by wintering *outdoors* you would adopt that plan, wouldn't you, even if it took more stores? for the trade of sugar syrup for bees is generally a good investment. Why don't you winter outdoors? A good deal depends, we suspect, on the locality and the sort of winter, and whether outdoor bees would be further along in the spring than cellared bees.—ED.]

JUNG KLAUS, the jovial Sammelkorb man of *Deutsche Imker*, quotes Editor Root as claiming that in nectar itself there are certain ferments that invert the sugar in the nectar, and Jung Klaus is distressed at the thought of taking from the bee part of its occupation. Bless your heart, Bruder Jung Klaus, Mr. Root never said any thing of the kind; doesn't believe any thing of the kind. Why don't you read GLEANINGS for yourself, and not depend on reports in other journals by those who perhaps do not read English very well, and get things badly twisted? [The statement to which Jung Klaus refers

is evidently something that appeared from the pen of Mr. W. K. Morrison, one of our department writers. As a matter of fact, *we* do not know whether there is a ferment that inverts the sugar in the nectar *before* the bees get hold of it or not.—ED.]

DRONE COMB for extracting-supers is objected to, page 349, because of the lot of drones reared. To be sure, you can avoid that by using excluders. But another objection remains. If there is drone comb in the super and none in the brood-chamber, the bees are inclined to hold empty at least part of the drone comb in the super for the queen to lay in. Besides this amount of idle comb, may it not have at least a little tendency to crowd honey into the brood-chamber? [We think you are right.—ED.]

NEVER BEFORE did I know a season with so few flight days up to May 4. I left the bees severely alone. Scarcely a hive was opened till May 8. Then I was surprised to find so little brood present. But how they did boom with the warmer days! If I had fed or done something else to stimulate brood-rearing I might now be bragging how much I had accomplished. Give bees abundance — not plenty, but abundance—of honey in spring, as Doolittle and Townsend say in last GLEANINGS, and let them "gang their ain gait."

WHO TOOK that picture of a foul-broody comb, p. 341? I've spent a long time admiring it as a work of art. [This was taken by our junior editor, H. H. Root. The general public may not know it, but we have a fully equipped photograph gallery, three cameras, a modern up-to-date dark-room, and men who understand the art of taking pictures. One camera alone, a little 4×5, cost $150. The lens, no larger than that in most $5.00 cameras, is worth over $75.00. To run an illustrated journal such an equipment is almost a necessity.—ED.]

CONFLICT — decided conflict — between ye editor and this deponent, p. 262. I don't say ye editor is wrong. I can only give my own experience. For 48 years I have taken bees from cellar only at a time when they could fly. I have not observed bad results, even when taken on different days, although nearly always the whole have been taken out the same day. I do not think "the strong are apt to draw from the weak," if, immediately after being taken from the cellar, the entrances are closed down to about an inch. It may be that "if there happens to be a heavy wind it is liable to force the bulk of the flying bees toward the leeward side." I don't know. I never took bees out in a heavy wind. Couldn't be hired to. [See what J. E. Crane says on this subject in this issue.—ED.]

SOME THINK that sections with tops and bottoms exposed in T supers become so badly propolized that they can not be well cleaned. It may do no harm to mention that the sections so highly spoken of on page 328 were all produced in T supers. [Nearly all the sections of honey produced in this country have their tops exposed while on the hive. At one time the wide frame was used largely. This has almost entirely gone out of fashion, and in its place has come the section-holder, or topless wide frames, single-tier, and the T super. In either case the bees can propolize the top of the sections, and they do to some extent; but it is quickly scraped off. The Dr. Miller honey that we saw at Hildreth & Segelken's warehouse was not only very pretty and nice, but the tops of some of the sections showed that they had been most carefully scraped, while the rest showed they never had been scraped because the bees had put no propolis or stains on them in the first place. As a matter of fact, when honey comes in with a rush there will be very few propolis-marks and but little travel-stain on the sections, so no scraping would be required.—ED.]

I WISH we might know the bottom facts about queenless bees and pollen. If a colony is carrying in little or no pollen when others are carrying in abundance we are almost certain that it is queenless. But if it is carrying in pollen, can we feel as certain that it is queenright? I doubt it. We know that a queenless colony is likely to have its combs heavily laden with pollen. That makes it pretty clear that, for a time at least, pollen was carried in when it was no longer needed. As a sidelight I may mention that, years ago, when I caged queens in their hives for ten days or so, the combs became pollen-clogged. [After Mr. Townsend's article was put in type we went out into the bee-yard where all the hives were marked, whether queenless or not. Dandelions, some fruit-bloom, and mustard were in bloom. The bees were carrying in pollen to quite an extent. It was apparent, just as Mr. Townsend says, that those colonies that had queens were carrying in more pollen, and were more active at the entrance, other things being equal, than those that were queenless. But queenless bees do carry in some pollen, and under some conditions a good deal of it; but whether any one would in any case be able to draw the line unerringly between queenless and queenright colonies by the amount of pollen carried in at the entrance is something of a question *unless* he also associates with pollen-carrying the general activity at the entrance.

There is another factor that has a good deal to do with the matter. At certain seasons of the year there is very little honey to be had, but considerable pollen. Take, for example, the time when corn is just tasseling out. During that time corn affords very little if any honey, while it affords a good deal of pollen. When pollen is plentiful at such times one might not be able to distinguish a queenless from a queenright colony. At another time honey will be very abundant—so much so that the bees, if they were already well supplied with pollen, might not be gathering very much of it, whether queenless or not; although when there is brood-rearing going on there is almost sure to be some pollen coming in no matter how much honey is being gathered.—ED.]

BEE-KEEPING IN THE SOUTHWEST

By Louis Scholl, New Braunfels, Tex.

The spring crop has been a short one in Texas, and there is a good demand for honey at fair prices.

Bountiful rains have fallen in all parts of Texas and other southwestern localities, and the bee-keepers are rejoicing.

THE QUALITY OF CATCLAW HONEY.

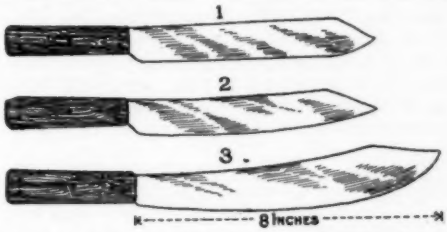
In our inspection work recently in Southwest Texas, "where the catclaw grows," we found several bee-keepers who objected to the description of the catclaw honey, p. 86 of the latest edition of the A B C. The statement referred to is as follows: "It yields immense quantities of excellent honey that ranks with the ordinary white honey of the North. While possibly it would not sell alongside of our clovers, yet in localities where it is produced it is praised very highly for table use, no honey being classed higher except that from huajilla."

The objection raised is that the above would lead one to believe that our Texas honey is very inferior, as the catclaw honey ranks only with the *ordinary* white honey of the North, and possibly would not sell alongside of clover honey. Still further objection is made to the statement conveying the idea that it is praised highly only in the localities where it is produced.

The Southwest Texans claim a greater distinction for their catclaw honey; and to substantiate their claim the writer has been living sumptuously on some of the finest and whitest comb honey gathered from catclaw. Since we have been "up North," we, for our part, will have to side with the producers who have reason to object to their fine honey being classed with the *ordinary* white honey, not salable alongside of clover honey, and praised only in the localities where it is produced. We also know that such honey finds its way into thousands of other places where it is shipped, and where it is highly praised by thousands of consumers.

THAT "BUTCHER UNCAPPING-KNIFE."

The straight butcher-knife for uncapping has received much attention since we first mentioned it several months ago, and dozens of letters asking me about the kind of knife used are convincing. The first one used was simply a straight-edged knife as shown at No. 1. It worked very satisfactorily on straight combs and if the cappings extended beyond the edges of the frame. Later it was found that one with a slightly curving cutting edge was preferable for thin combs which had to be uncapped partly inside of the frames. But this knife (No. 2) could not be used well for cutting into low places of the comb surfaces on account of the straight point. This latter feature the first knife used possessed; and after making the discoveries of the advantageous points of such an uncapping-knife, one shown in No. 3 was finally adopted, and it has given the best satisfaction. It possesses the curved cutting



edge for shaving right into the comb, whether the cappings extend beyond the wood or not, and has a rounding point with which to dig into all sorts of low places. Another advantage is its extra length over No. 1 and 2, which makes possible a drawing motion, resulting in easier and better work. Such knives can be obtained at hardware stores for about 70 cents. They should be of good steel, and kept very sharp. We use them cold, but wet them by washing them occasionally to prevent gumming.

HIVE-SIDES IN TWO PIECES.

A hint is given the bee-keepers that they must expect hereafter hives with the sides in two pieces. This is on account of the scarcity and expense of wide lumber. While we do not like the idea, it may be all right. The fact is, the sides of our brood-chambers are and have been in two pieces for many years. But these are the divisible-brood-chamber hives, and they are the only kind of hives we would care to have with more than one-piece sides.

It has been a number of years since we first called attention to the fact that narrower and cheaper lumber could be used in the construction of the divisible-brood-chamber hive. The time will come when such hives will be used much more extensively. We see many evidences of this, both in our visits to bee-keepers and in the columns of our journals. The advantage such hives possess in manipulating large numbers of colonies in many apiaries scattered far and wide, making it possible to obtain the best results with the least amount of labor and expense, is already enough to warrant their adoption as a standard hive. We have found such a move a profitable one, and for several years we have purchased no other kind, and we are selling off all our deep hives. This, in a year or two, will leave us nothing but the divisible-brood-chamber hives.

Our hives are standard goods, nevertheless, although such hives as we use are different from others on the market. They consist of nothing but the regular standard 5¾ Ideal shallow-frame extracting-supers throughout for brood-chamber, super, and all. These are of the ten-frame width, and any regular cover and bottom can be used.

SIFTINGS.

BY J. E. CRANE, MIDDLEBURY, VT.

For an easy and cheap device for weighing hives of bees I have seen nothing better than that illustrated on page 105, Feb. 15.

E. F. Atwater's method of curing foul brood and getting honey, p. 136, in careful hands is safe, and worthy of the attention of bee-keepers where this dread disease prevails.

Mr. Atwater's exhibit of wasps' work, p. 110, Feb. 15, is interesting. We have the same wasps here, but they find ample room to build their nests in the top of our hives, so they do not often soil or injure sections.

"There is a possibility and even a probability that we shall have a late spring, owing to the mildness of the winter," says editor of GLEANINGS, page 119, March 1. Well, we are getting it here in Vermont; but we have this to fall back on: I have never known a very early spring to be followed by a good honey season. On the other hand, a good season does not always follow a late spring.

E. D. Townsend's article, page 111, is of more than ordinary interest. What he says in regard to a sheltered location can not be too highly emphasized. However, I don't quite agree with him that it is necessary to have a good day for bees to fly when taking them out of the cellar. I have found that it works well to take them out on a raw cold day, and then when it warms up they are ready for a fly.

That picture of the first meeting of the Maryland Bee-keepers' Association, is well worth our attention, page 131, March 1. I remember that, many years ago, a friend was looking over that medley of photographs sent out by the Root Co. "Well," he said, they are a good deal above the average," and I believe we *always* find a crowd of bee-keepers so, both in intellect and good morals, at all our gatherings.

"Better packages for our next honey crop should be considered by every bee-keeper who ships honey. We do not care to have the railroads raise the freight rates," says Louis H. Scholl, page 102, Feb. 15. It does not cost me any effort to agree with him. Bee-keepers can not be too careful as to what package they use. Get the best, and then paste a good label on top, stating contents of package, and ask politely for careful handling and packing in car.

That "honey-man" W. A. H. Gilstrap, makes some pretty good points about peddling honey, page 112. One thing I want to call attention to. He says that one of their leading grocers told him that it increased his honey sales when the town and surrounding country became interested in honey through his efforts in peddling. Exactly. I have noticed in a good season when everybody was talking about bees and honey, and how much money the bee-keepers were making, it is much easier to sell honey than in other years when there is little gathered.

On page 119 the editor says, "A capping-melter will be placed on the market this season. This will enable one to have all his cappings, while extracting, melted up into nice marketable cakes of wax at the end of the day's work, while the honey will be in fine condition to bottle."

Other writers I have noticed made similar statements. Now, I have never used a capping-melter for melting cappings as fast as removed, but have had one made for this purpose; but I have melted up many hundred pounds of new combs in double boilers, but have never been able to separate the wax so as to be fit for market without remelting. I have always found more or less honey mixed with the wax, and more or less of the wax of a granular character that needed a much higher temperature than could be given the honey without injuring it. Can some one explain? [In our next issue we expect to have some illustrations bearing on this question.—ED.]

On page 123 friend Holtermann refers again to sealed covers and the excessive moisture of the brood-chamber as likely to injure the stores and bees. I believe most bee-keepers along the northern limits of bee-keeping will agree with him. Some years ago, when this subject was under discussion, I prepared a hive with enameled cloth over the brood-chamber, and packing over that. Well, that colony wintered; but the inside of the hive in spring was such that I have never had any desire to repeat the experiment. Where bees are confined to their hives from two to four and sometimes five months, we can not be too careful in keeping the inside of the hive dry as well as warm when wintered out of doors. On the other hand, too free a circulation of air is not good. I have found that a couple of boards laid loosely over the brood-chamber will give room for the moisture generated by the bees to pass up through the cracks into the packing.

DEATH OF MINNESOTA'S FOUL-BROOD INSPECTOR, MR. RUSSELL.

I have to tell you the sad news of the death of my old friend and companion, Wm. Russell, bee-inspector of Minnesota. Mr. Russell probably had more to do, next to Mr. J. C. Acklin, also deceased, with getting a foul-brood law in Minnesota, than any other man. He was a good bee-keeper and a good inspector, and had the gift of making friends wherever he went. Bee-keepers have certainly suffered by his death.

Minneapolis, Minn. L. D. LEONARD.

CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK.

SUPERSEDING OF QUEENS.

"What are you doing with those boards about the entrances to the hives, Mr. Doolittle?"

"Fixing them so as to keep the grass down in front until it is time to mow the bee-yard, as it is getting so high that it tangles the bees somewhat in their flight, especially those coming home loaded with honey."

"But why don't you cut the grass now?"

"Because I would have to cut it again in a week or ten days if I did. If you will notice you will see that the heads or blossoming parts of these grasses are not yet high enough so that they would be cut off were I to mow the yard now with a scythe, and for this reason they would grow right along, the same as if I had not cut the rest off, running right up tall inside of ten days. If I wait till these heads advance far enough to be cut with the rest of the grass, that will end the matter with *one* cutting for the season, unless we have an unusually wet summer. When I was more ambitious, and younger, I used to use the lawn-mower; but as that took so many repeated mowings during the season, I gave it up and adopted the plan of mowing once on account of saving so much extra work which I did not feel able to do."

"But say; the bees of three of my colonies are trying to supersede their queens. How do they know when to supersede?"

"Well, you have fired a question at me that I do not now remember having seen discussed in our bee-papers, so I have nothing to work on except my own observations."

"Those observations are just what I want unless you wish to be noncommittal."

"I am always willing to tell what I know about bees. After a careful watching of all cases of supersedure of queens which have come under my notice, I am led to believe that the bees, as a rule, supersede a queen because she ceases to be as prolific as she was. Especially is this the case where the attempt is made to replace the old queen previous to swarming, or within a week or two after a swarm has taken a new abode, say during the first two weeks after the swarm has been hived."

"Then you think that the bees are such close observers that they notice the number of eggs their mother lays?"

"I do not know that I should want to say just that; but in all of the cases of supersedure which happened at the time spoken of, the queens were failing, and soon died; in nearly every case before, the young queens began laying, so that I have felt I had positive evidence that the fewness of eggs laid by the queen was the real reason why she was replaced."

"But are not queens superseded at other times of the year as well as during or near the swarming season?"

"Yes, later on in the season. However, the evidence that the bees know at all times what they are about is not so great as it might be, and thus we have exceptions to some of the rules regarding the workings of our pets. At different times, during August and the fore part of September, I have found the bees bent on superseding their queens. I will give you one instance as an illustration of several. In this instance the bees were determined to supersede one of my best queens—one which I prized very much as a breeder; so as fast as they got the queen-cells sealed I removed them, hoping that they would give up the idea. I used these cells in nuclei up to about the first of September. While cutting out these sealed cells one day I found a nice young queen which had emerged from an unobserved queen-cell. A friend who was with me noticed what a beauty this young queen was, and offered me $4.00 for the old queen, as he was willing to take his chances with her. He was an apiarist of considerable experience, and I thought he would get his money's worth from the queens he might rear from the few eggs she would probably lay before she died, especially as I had explained the whole matter to him, so I let him have her. He took her home, succeeded in safely introducing her, reared two batches of fine queens from her, and, much to the surprise of both of us, his bees did not try to supersede her that fall, and she lived and did good work for two years, so that he changed his whole apiary over to stock of this kind. This proved to me that the bees do make mistakes sometimes in this matter of supersedure. He used to chafe me occasionally about getting one of my $10.00 queens for $4.00."

"That was interesting, sure."

"Yes, and there is another instance which I recall, which shows a still worse blunder on the part of the bees. One fall as I was preparing the hives for winter I found two queens in one of my colonies, the mother having her wings clipped. They were left, as I wished to see what the result would be. In the spring both were there, and soon had the hive full of brood. One day a man of prominence in the scientific world called on me, and I showed him the two queens, they both happening to be on the same comb. They were a great curiosity to him, and after he went away he sent me a high price for the colony, as he wished to study into the matter. When I went to prepare them for shipment I could find only the old queen in the hive. After a short search in front of the hive I found the young queen where the bees had drawn her out after having killed her. The old one failed soon after, and died; but the bees made no effort to supersede her."

It is surprising to find so much wax going to waste in so many apiaries. By all means get a solar extractor, and save all bits of combs and wax. It will pay you. Later get a good wax-press and save this waste.

New Braunfels, Tex. LOUIS SCHOLL.

GENERAL CORRESPONDENCE

GREASY SECTIONS.

Their Cause and Cure; Killing the Goose that Lays the Golden Egg.

BY W. M. WHITNEY.

Mr. Editor:—The matter of greasy or watery sections, like Banquo's ghost, bobs up at regular intervals to haunt bee-keepers. At this time the apparition has traveled across the Pacific from New Zealand, as appears in Feb. 1st GLEANINGS, p. 87. I know of no one but myself having so far taken the pains to experiment along this line for the purpose of discovering if possible the real cause of greasy-looking cappings. Watery cappings, as they are sometimes called, are as far from the real condition as can be imagined, for water has been so thoroughly evaporated from the honey that I doubt if it would be possible to cause the honey to granulate.

It hurts me dreadfully to hear old bee-keepers and writers condemn a queen whose workers produce, perchance, such finished product. From my knowledge of the facts, gained from actual experience, I am led to believe that all such conclusions are jumped to (so to speak) simply because such colony happens to be an exception among many others in the apiary. Has anybody ever known of an instance where greasy-appearing sections occur, when the hive was not overflowing with bees? At any rate, I never have. Isn't it a fact that we are seeking queens with just such laying qualities to stock our apiaries? Now, from what I know of the matter I'd just as soon go out to the poultry-yard and wring the neck of the best pullet "laying an egg each working day and two on Sunday," when eggs were bringing 40 cts. a dozen, as to pinch the head of such a queen. Really, it's like killing the goose that lays the golden egg.

Now for the report of my experiment. But allow me to premise by saying that my bee-keeping has been largely a pastime; and when reading any matter having, as I believed, an element of doubt attending it, I have tried to satisfy myself of its truth or falsity by making the best test I could, and this matter of greasy sections was one of the doubtful ones. I could not understand how it could be possible that the queen was the direct cause of such a state or condition of the sections. A number of years ago, after reading this matter, and noticing all sorts of bad things said about the queen of such a colony, I determined to make an experiment, having an impression that a very different cause existed, and that it might be worth looking for.

I selected one of my best colonies having a splendid queen. When the proper time came, a case of sections was put over the brood-chamber; and as the honey-flow was then well under way, in a few days the sections were pretty well drawn out and were being filled. This case was raised and another put under, as has been my custom in such cases. A short time thereafter, as nice a case of honey was taken off as one would wish to see. At the same time, the lower case was raised and another put under; and a cushion was put over the upper case of sections, and tucked down snug so as to prevent circulation of air. The hives used are what is known as the double-walled, having an air-space of about two inches around the entire case of sections, in which the bees are permitted to cluster. The queen, being an exceptionally good one, filled this hive, including the air-space, to overflowing with bees. In due time a case of greasy-looking sections was taken off, looking as though they had been varnished. The lower case was raised, the cushion removed, and another case put under. After a time the third case was removed, showing a few sections through the middle with greasy markings, the outside ones having none.

Now, why should that queen's workers produce white-capped sections at one time, then change to greasy ones, then back to white ones again? What is the conclusion one is forced to after such a test? It is this: That it is not the queen at all, but the excessive heat and lack of proper ventilation of the hive. That such a colony is not a suitable one for the production of comb honey is a fallacy; for, with proper ventilation, such a colony will do better work than a weaker one, for the very good reason that it will do its work much more rapidly. Such a colony is just right for any work desired, if properly manipulated.

It will not be a sufficient reply to say that other colonies in the same yard, equally populous, do not produce greasy sections. It is scarcely possible to find two colonies working under exactly the same conditions. I think it will be admitted that there is scarcely another occupation where the difference in results is so manifest from slight changes in conditions or manipulations as in bee-keeping. One colony may be more exposed to the sun's rays in the middle of the day, and be capping sections at the critical time; but had there been a slight favorable change of weather the crisis would have passed; or one has less ventilation because of clustering of bees in front of the hive, which is a very common thing; or the hive may have been located in a part of the yard less exposed to currents of air than many others. Of two colonies, apparently equally populous to-day, on examination a week hence we find one maintaining its force while the other has fallen off perceptibly. So we might continue to point out differences *ad infinitum*, caused by differences in conditions and manipulations.

I feel certain that a careful examination of any normal colony as it goes into winter quarters will reveal more or less combs of honey with cappings looking as though they

had been varnished. The finest comb imaginable, taken from the side and put into or near the center of the hive at such a time, will soon have this appearance from the heat of the cluster of bees. The cause is the same as in the case of section honey. Shall we, then, as is recommended in the other case, without further ceremony, proceed to lynch all the best queens in the apiary? Why it is that old experienced bee-keepers cling to the fallacious idea that the queen is the cause of all this mischief they complain of seems strange to me. It is true, however, that we are inclined to hold on to old ideas and practices, often, without being able to give a single reason for so doing. "It's so if mother says so, whether it's so or not."

If I could feel that I had been the means of dissipating this bugaboo from the minds of bee-keepers I should feel satisfied, even if I never accomplish any thing more in the way of improved bee-keeping.

A few years ago, after having made the experiment above described, and reading the advice given through the *American Bee Journal*, to pinch such a queen's head and requeen the colony, this matter was discussed, and I earnestly requested those who had such queens, instead of pinching their heads, to mail all such Italian queens to me. I'd pay for them, as I wished to stock my apiary with just such bees. I've yet to receive the first invoice. This case reported from New Zealand—that of a hot dry season and a populous colony—supports my contention that it's not the queen at all.

Evanston, Ill.

[This is a very important subject, and we should be glad to get a series of short responses from bee-keepers everywhere bearing on Mr. Whitney's theory as to the cause of greasy sections. If he is right, it is folly to kill an otherwise good queen simply because her bees, under certain conditions, have produced greasy-looking sections.—ED.]

HONEY-EXTRACTORS.

Some Experience with Different Styles and Makes.

BY R. V. COX.

On page 275, May 1, Mr. Virgil Sires asks why there can not be more articles from the large honey-producers describing equipment, etc. I have had, perhaps, more experience with honey-extractors than many, for I have run a two-frame Novice, a three-frame Stanley, a four-frame Cowan, an eight-frame Cowan, and a four-frame Root automatic extractor. I usually extract before the honey is fully capped, and often before it is capped at all. The honey runs through a tin pipe into tin-lined tanks to ripen. All of my buildings are non-portable.

In regard to extractors I will say that the two-frame Novice was all right for the purpose for which it was built; namely, for extracting combs in a very small yard, or for extracting partly filled sections. For these last I have two frames made that will just fit the baskets with cross-pieces to hold different rows of sections. If there is need of hurrying this work there could be four such frames, so that two of them could be loaded by some one else while the other two were in the extractor.

The three-frame Stanley stood the hardest usage of any extractor I ever ran; but it was not provided with gears to enable one to speed up the reel, and it was, therefore, a man-killer if one expected to get all the honey out of the combs.

For a machine run by hand, the four-frame Cowan suited me the best. By putting the brake on with the left hand, and holding back on the crank with the right, I could slow down the reel very quickly, and then, as the crank was going down, I could let go of the brake-handle and catch a basket and reverse all the baskets at a higher reel speed than is possible with the automatic extractor. However, I should not want to put my hands down into the reel at such a speed if the machine were driven by power.

The eight-frame automatic extractor was too heavy to do much extracting by hand. This was one of the first large power-driven machines sent out, and the pulley was made to take a 1½-inch belt. This narrow belt was so light that it took too long to speed up the reel, and I always had to help it along by hand. Moreover, it took too long to slow the reel down again. On this account I could extract thin warm honey just as rapidly with the four-frame machine using hand power. The eight-frame extractor run by an engine, when once speeded up, would dry the combs of honey a little the best of any that I ever owned. I found by trial that it would get from a few ounces to two pounds of honey out of a set of combs which had already been extracted once by hand. I do not know that all this honey would be lost if the combs were put back on the hives, but, at the same time, I would rather have it in the tanks.

The four-frame automatic is almost as good as the Cowan to run by hand; and if run by power it is my choice of an extractor. With the extractor full of combs, I can put one hand on the belt-tightener and the other on the brake, and speed up the reel, use the brake until the baskets are reversed, speed the reel again, and then stop it in less than a minute. Usually I do not work as fast as this, for I let the reel run for a time at full speed to dry the combs of honey. The four-frame extractor will dry the cells almost as well as the eight-frame; and if a larger pulley were used on the engine, I think it would do fully as well.

If a four-frame extractor did not do my work fast enough I would have another four-frame on the opposite side of the engine so that I could let one of them run while I was changing the combs, etc., in the other. Then if any thing happened to one extractor I could run the other one; and if the engine

gave any trouble I could still extract by hand. Some may think that extractors seldom break; but I have not yet seen a season when, for some reason or other, some part was not broken when it was most wanted.

In the matter of power, the Gilson gasoline-engines have given me little trouble. One would suppose that the eight-frame power extractors would break the combs; but I have not found it so. The Cowan extractor run by hand was the worst comb-breaker I ever handled, because of the method of reversing.

The worst trouble that I have found with the Root extractors is that the baskets and hangings are too light. I used to make a regular business of dropping the combs into the baskets of the Stanley extractor. An old comb that has not been uncapped will stand a lot of such handling. Such usage knocks the bottom out of any of the Root extractor-baskets, that I ever seen, in less than half a day. A broken comb or two amount to little, for the bees can generally patch them up easily; but a broken extractor at such a time is a serious matter.

Sloansville, N. Y.

[Wider pulleys are now used on the power-driven extractors, and the baskets and hinges are also now made stronger.—ED.]

THE ARRANGEMENT OF SUPERS ON A HIVE.

The Darkest Cappings in Supers Nearest the Brood.

BY DR. C. C. MILLER.

The following is from my friend Adrian Getaz:

Your last article on the placing of supers has interested me very much. My honey-flow is quite different from yours, and of course that must make a difference. Otherwise my experience is the same.

Permit me to call your attention to a method that has on certain occasions given me very good results. It is, simply, to place the new super below the others; and when the work is well started remove it and place it above.

I too have practiced to a considerable extent what is probably the same thing. My idea was that, if the oldest super were kept next the one latest given, it would be finished sooner, and I could the sooner reduce the number of supers. Suppose there are 6 supers on a hive. If the oldest super be next to the lower one, it seemed it ought to be finished much sooner than if it were put in the topmost place. I must confess that, in actual practice, I did not find the difference I expected, and I am not really sure that there was any difference in the time of completion.

There is no denying that it makes work heavier to have four to six supers on a hive at the same time; but there are not lacking compensations. Generally speaking, the further a super is from the brood-combs the whiter will be the capping of the sections. Years ago, when I used wide frames holding eight sections each, I raised a brood-frame from below and put it between two wide frames to bait the bees into the sections. It worked to a charm. But if I did not remove the brood comb before the bees started at capping, they made sorry work, invariably carrying bits of black wax from the brood comb to the sections. I think you will find darker sections over thin top-bars than over thick ones. And, in general, the nearer the brood combs a section is when the bees are capping it, the more danger of the cappings being dark. Don't forget that there's more travel over a lower super than over an upper one.

Then there's another consideration that alone reconciles me to the heavy work of handling so many supers. It is, I think, agreed that the longer honey is in the care of the bees the richer and better it is, the object in hurrying it off being to prevent the darkening of the combs. Suppose that colony No. 1 is never allowed more than two supers, and No. 2 is allowed five or more, or as many as it can occupy. No. 1 will be crowded into finishing its sections sooner than No. 2. But No. 2 will have twice as much honey on at the same time as No. 1, which is only another way of saying that honey is twice as long on No. 2 as on No. 1. Just stop and think over that. I believe it is a matter of no small importance.

THE CHOICE OF LARVÆ FOR QUEENS; THERE SHOULD BE ROOM FOR LARGE CELLS.

Mr. Getaz also says:

Your discussions with Messrs. Taylor and Hutchinson concerning the choice of larvæ to raise queens is another point of high interest to me. My experience has invariably been like yours, that the bees will not choose a too old larva unless there is no other at their disposal.

But there is a point that has escaped your attention and theirs as well. That is, the space between the combs. Give a comb of young larvæ or eggs to a queenless colony; push the others sufficiently far to leave the necessary space, and you will find good big queen-cells protruding away from the combs; and in such queen-cells you will find good big queens. But let the opposite comb be too close, and also occupied by some brood or sealed honey, then the queen-cells, instead of being of full size, will be more or less stunted. Stunted queen-cells produce stunted queens. These queens, so far as the appearance to the naked eye goes, look just like those raised from the too old larvæ. That's what has probably misled Messrs. Taylor and Hutchinson.

Knoxville, Tenn.

So far as I know, that's an original view, although it is not altogether new to say that bees must have room for a queen-cell. I suspect Messrs. Taylor and Hutchinson will reply to you, "But when these stunted cells are taken away, and fresh brood given, cells are started that are not stunted, although the combs are crowded just as close as before." I may say that I use self-spacing frames; and when I give brood from which the bees are to rear queens, the frames are always crowded together just as close as they can be, and I have no trouble with stunted queens. That, however, is only part of the truth; and when I tell the whole truth you will say, and say rightly, that my experience only confirms your view. The whole truth is that the frames I give the bees to rear cells in contain freshly built comb, and the frame is only half or three-fourths filled with comb. I cut away the outer edge of the comb to where just hatched larvæ appear, allowing

the bees to build cells on the outer edge that is left. Let us see how much difference that makes in the matter of room.

If full combs are used, containing worker-cells built out to the normal depth, and the combs are spaced 1⅜ from center to center, there will be a space of ½ inch between combs for the bees to build cells in. But if the comb given be only partly built down, the bees will have all the space between the two combs on either side, or 1⅜ inches. That's nearly four times as much space as they have between combs when all combs are fully built out. The fact is, that with these combs only partly built down I have no trouble with poor cells, and I have never fully understood why. Perhaps your view explains it. But I don't know how to answer Messrs. Taylor and Hutchinson if they make the reply I have attributed to them.

Marengo, Ill.

PRACTICAL INSTRUCTIONS FOR BEGINNERS.

Folding Sections and Putting in Foundation.

BY E. D. TOWNSEND.

When folding sections, if any noise is heard, as of the wood breaking at the V groove, the section is too dry, and the whole stock should be dampened before more of them are folded. Even if the wood is not dry enough to break entirely at the V groove, it is weakened if this crackling noise is heard, and will always be fragile.

When the wood is in just the right condition the section should fold without a particle of breaking at the point where the V groove cuts nearly through. If the work is done during the wet season or early spring, especially if the sections were kept in a room where there was no fire, it is probable that no dampening will be necessary. If this wood is not in the right condition, however, all of the sections must be dampened to prevent breakage or frail corners.

There is quite a knack in dampening sections so that they will be perfectly square when folded. It is very necessary that the section, when folded, shall be square on account of the full sheets of foundation to be put into them, as will be explained later. At one time we poured hot water from a teakettle into the V grooves of the sections before removing them from the crate. We placed the crate on edge and removed the side in order to expose all of the V grooves so that the hot water from the kettle could follow clear through all of the five hundred sections. We found that this method caused the sections to swell to such an extent that they could hardly be bent around sufficiently to get the notched ends together.

HOW TO DAMPEN SECTIONS SO THEY WILL FOLD PROPERLY.

If the weather is dry, as it is likely to be in summer, or if there was a fire in the room where the sections were stored, the folding can not be properly done unless these sections are dampened. To do this, remove enough of the crating to expose all the V grooves in the outside layer of sections, and then group the crates together and cover them with a wet blanket, which has been wrung out so that no water can drip from it. The next morning the sections will be in first-class shape to fold.

The above method is the one to follow during a very dry time in summer, or whenever the sections for any cause are bone-dry. Very frequently sections need but little dampening to be in good condition; and in such cases a little water should be *sprinkled* upon a dry blanket, using judgment as to the amount needed. A little experience along this line will make every thing work nicely.

FOLDING SECTIONS.

To be sure that the sections will be square after they are folded, a section-press is essential. This device forces the notched ends of the section together while every corner is held true and square. Properly made sections put together with a press of some good make will give very little trouble about being diamond-shaped, etc., especially if the directions for dampening, as given above, are closely followed.

The folding of the sections and the putting in of the foundation determine to a great extent the quality of the honey that is to be produced. There is entirely too much of the ordinary kind of comb honey on the market, and the price is so low that there is absolutely no profit in producing it. Extra good comb honey should be produced, and then a good fair price asked for it. During the season of 1906 the writer produced comb honey that retailed for 33 cts. a pound, and at the same time there was considerable comb honey on the market that could be bought for one-third this price. It did not cost very much more per pound to produce the better grade, and it therefore is plainly evident which was the more profitable—the 11-cent or the 33-cent grade.

PUTTING IN FULL SHEETS OF FOUNDATION.

A diamond-shaped sheet of foundation will not fit a square section. The piece should be cut with the corners perfectly square, and wide enough so that it will slip into the section without crowding. The piece should not be so deep as to come nearer than a plump quarter of an inch from the bottom of the section when fastened in. The piece must hang true in the center of the section, or the best results can not be attained. The test comes when the section is squared up when placed in the super; for if it is diamond-shaped the foundation will be thrown over against one side when the sections are squared up, for one edge of the foundation striking the side of the section will throw the other lower corner against the separator. The section does not have to be very much out of true for this to take place, and such a section is a complete failure so far as comb honey is concerned, for it will never be sal-

able when full. This is, perhaps, an extreme example, but nevertheless many sections are given to the bees in just this condition.

One of my acquaintances kept a pair of shears near by; and when he found a full sheet of foundation striking the wood near the bottom he sprang the piece out far enough to clip off enough so that it could hang straight. This will prevent irregular combs, but it is a makeshift, and should be adopted only until one acquires the knack of putting up the sections and full sheets of foundation so that they are square in the first place.

A section can not be filled too full of foundation at the sides, and good results will always be attained providing the sheet does not touch the wood. However, as mentioned before, there should be at least a ¼-inch space between the bottom of the foundation and the bottom of the section. This is to allow for the sagging of the extra-thin foundation used. Foundation must not sag enough to touch the bottom of the section until quite well drawn out by the bees, or there will probably be trouble because of buckling, and buckling is just as bad as the condition which makes the foundation swing over to one side against the separator.

If the beginner will bear in mind the fact that the foundation must hang true in the center of the section, no matter whether fastened by a hot plate or by melted wax, much of his trouble in putting in foundation will disappear. With either method the foundation can be made to hang in the center providing time enough is spent on the work.

THE MELTED-WAX PLAN OF FASTENING FOUNDATION.

I am very sure of one thing, and that is, that better work can be done with the melted-wax plan of fastening foundation into sections than with the hot-plate machines. One bad feature about the melted-wax plan, however, is having the melted wax around. We have never put in enough foundation on the melted-wax plan to acquire the dexterity that we should. I presume some will always use one plan and others the other.

Last summer we put in some foundation on the Yoder plan described in the April 1st issue of 1908. As will be remembered, the Yoder plan consists in fastening the foundation with melted wax, not only across the top of the section but also one-third of the way down the sides from the top. Every section put up in this way produced a perfect section of honey so far as the foundation was concerned. With foundation fastened one-third of the way down the side of the section, most of it is apt to be a little curved, due to the expansion when it is warmed up by the bees. Some of the sheets were curved perhaps half an inch; but when the honey was finished, there was nothing to indicate that the foundation had not been in the center of the section. Somehow I can not help thinking that there would have been a little more work done in the supers if the foundation could have been kept true in the center.

About the only tools needed for putting in foundation on the Yoder plan is a wax-tube. There should be a square block a trifle less than half the thickness of the section, and just large enough to fit inside. This block should be perfectly square, as the section must be held square when putting in the foundation. The block should be nailed to a thin board a little larger, and, for convenience, a handle should be nailed to the back of it. The foundation must be accurately cut just the size of the inside of the section, less the ¼-inch space at the bottom. To put in the foundation, the section should be placed over the block before mentioned, and the sheet of foundation put in place pushed close to the top. The block should be held in such position as to form a trough made by the sheet of foundation and the side of the section, and then some melted wax dropped at a point one-third of the distance from the top of the section now held at the bottom. By turning the block around, the wax can be made to run down and around to the other side, and finally to a point one-third of the distance from the top. To work to good advantage, two or three of these blocks are necessary, as the wax should cool before the sections are removed.

Remus, Mich.

NEW JERSEY FAILED IN SECURING A FOUL-BROOD LAW.

Our foul-brood bill was introduced into the Senate by Senator Gebhardt, of Hunterdon Co., and was defeated on its third reading by the narrow margin of *one* vote. Of course, it did not get to the Assembly, so we do not know how that stood. It was supported by the senators from the agricultural counties, and objected to by the senators from the cities.

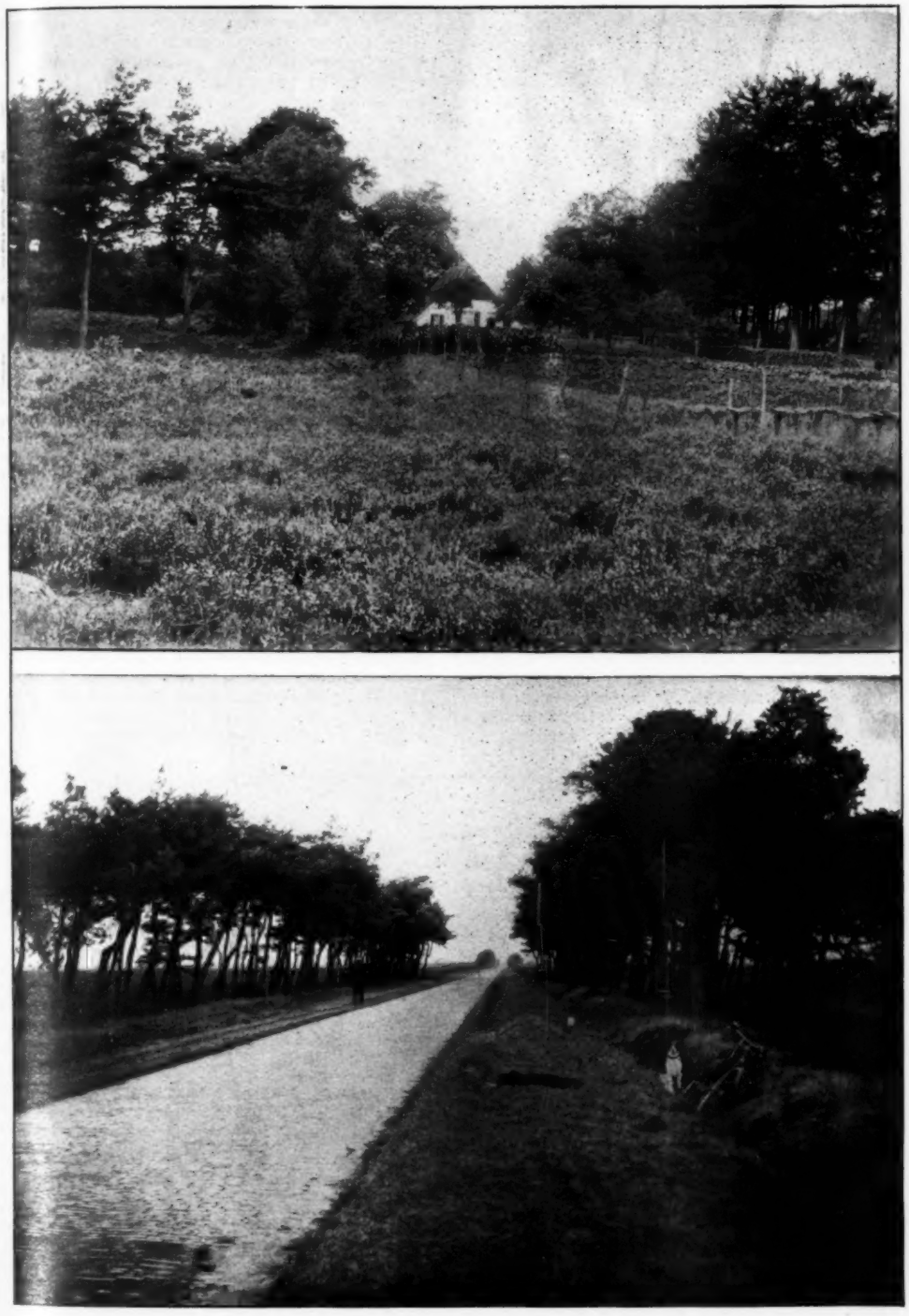
We asked for an appropriation of $500, and that was the chief objection to the bill. There is a threatened deficit in the State treasury of over $500,000, consequently all *new* legislation that included appropriations was objected to. All the regular State appropriations were cut down to economize.

We are disappointed but not discouraged. We will try again next year. The finances of the State will be in better shape, and the matter will be better understood; hence we will stand a better chance to get our law.

In the meantime we should like to be kept informed as to the extent of and loss from foul brood in various parts of the State, and to have more bee-keepers join our association. The better informed we are, and the stronger our association, the more effectively we can argue with the legislature.

Pittstown, N. J. ALBERT G. HANN, Sec.

[We are glad that the fight will be kept up to get the law. In the mean time bee-keepers should take means to inform their Senators and Representatives from all over the State of the importance of the law. See them personally when they come home; and if that is impracticable, write them.—ED.]



HEATH CORNER NEAR OOSTERBEEK, HOLLAND; THE ROAD FROM ARNHEM TO APELDORON, CROSSING ONE OF THE RICHEST HONEY HEATHS.

BEE-KEEPING IN HOLLAND.

BY HENRI MEYER.

During the last three years bee-keepers in our country have had several severe lessons. They have patience, however, for they fix their hopes on the promise of better times in the future. Since I became an amateur bee-keeper I have become acquainted with many good but pennywise and conservative Dutch bee-men from whose mistakes I have learned the art of bee culture.

Though we have some good bee-farms in Holland, where the work is based on modern principles, there is little or no tendency among the conservative men to leave the methods of their grandfathers, notwithstanding the fact that the Dutch association for the propagation of bee culture is trying its best to work a reform. Our grandfathers swore by a sort of multiplication system which is still prevalent in some parts of our country. Many Dutch bee-keepers who have from 50 to 100 hives on summer stands maintain from year to year the maximum number of colonies from the fewest possible number wintered. From grandfather to grandson they endeavored to obtain as many swarms as possible per colony; and to get from four to six new colonies from one old one was a common thing. Unconsciously a race of bees was bred, the characteristics of which were in the direction of swarming, and for this reason all methods for the prevention of that tendency must naturally lead to failure. The degeneration of the bee race, in my opinion, is one of the reasons why some of these old bee-keepers, willing to try the movable frames in hives of large dimensions, obtained negative results, and then cheerfully returned to their grandfathers' thin small straw hives. They saw no possibility of keeping their record-breaking swarmers quietly at work during two or three good honey-flows, for all the honey that came in was converted into brood; and when the colony developed to the maximum strength it gave off the inevitable swarm. In such cases, at the end of the season the crop consisted of a few pounds of wax and a few pounds of bees, the latter, however, having scarcely enough honey for winter stores.

Well, these good old conservative bee-keepers who advocate the swarming system have learned in three consecutive bad honey years what a century of their grandfathers' methods could not have taught them. In the spring of 1900 nearly all the colonies in my district were in very poor condition. They came through the winter with hardly a handful of bees, and developed very slowly, so that the first swarms did not come off before the end of June. Some colonies, however, did not swarm at all on account of being in poor condition, and these at the end of the summer succeeded in reaching a gross weight of 60 pounds, notwithstanding the fact that the buckwheat and heath crops were spoiled by the cold and rain, and also that not more than ten really favorable days could be noted in the season. The colonies, however, that swarmed did not get a chance to recover from so great a loss of the working force.

It can be seen how penny-wise and pound-foolish these conservative bee-men are. Instead of wintering the colonies that did not swarm, and that succeeded in getting plenty of winter stores, they kill them to get the honey, which honey is, of course, of poor quality on account of the irregularity of the flows. From the weak colonies they choose those to winter over. Is it not a curious fact that, in a country where selection and mutation theories are so well known, thanks to our world-famed Professor Hugo de Vries, the selection theory in bee culture should be so grossly neglected?

DUTCH SWARM SPECIALISTS INSPECTING THE BARGAINS AT THE BEE-MARKET IN HOLLAND.
Hives with bees and honey sell for $2.00 each.

THE BEE-MARKET IN BENNEKOM, HOLLAND.

I am sending some views which may be interesting to the readers of GLEANINGS. They are characteristic of the conservative Dutch bee-keepers earnestly looking through their old straw hives exhibited at the bee-market in Bennekom, and of the country in general.

Arnhem, Holland.

ALSIKE HEADS THE LIST OF CLOVERS.

Reported that it is Unsatisfactory as a Hay Crop, and Injurious to Animals.

BY J. L. BYER.

Of all the nectar-secreting plants that are cultivated, there is no question that alsike heads the list. While we often see the value of this plant extolled in the journals, nearly always its value as a *hay-producer* is mentioned as an inducement to get farmers to grow this prince of clovers. Living in a locality where alsike is grown almost exclusively for its seed, naturally we often wonder why it is not more recommended in this line as a money-producer for the farmers. Just here it is interesting to note that, in a locality where this clover has been grown for over thirty years, to attempt to persuade a farmer to grow alsike for hay would be to meet with very poor encouragement, as it is not liked for that purpose by the great majority of farmers. While a good many like a small percentage of this clover along with the red clover and timothy, yet they want the percentage *quite* small if they can control the matter. As a matter of fact, they can not do that, as the clover has been grown so long that most of the fields are seeded down in good shape, and as a rule all the meadows have a good percentage of alsike mixed in without any of the seed being sown. As most people know, the seed will lie dormant in the ground for years, and then spring up when conditions are favorable.

As to the objections to the clover for hay, fancied or otherwise, the farmers claim that it is bitter; and whetherthere is any thing in this detrimental to stock or not, a taste of the clover will prove that it certainly is bitter. For pasture it is decidedly objected to, as the claim is made that it poisons stock, causing a species of scrofula with running sores over the animal affected. Naturally a champion of the clover, I am bound to admit that I have seen a number of these cases, of which a few ended fatally, and in each case the veterinarian diognosed the case as "alsike poisoning." A strange feature of this complaint is that it is conceded that white-nosed horses are more susceptible to this poisoning than are other animals without this facial mark; and while I have been disposed to ridicule this assertion, yet I was surprised a few days ago to see in so good an authority as the *Farmer's Advocate*, where a correspondent asked if there was any thing in the idea, an admission, in effect, that this was the generally accepted view. However, if there is much in these adverse opinions as to the value of alsike as a forage-plant, the value of the seed crop is enough to counterbalance these objections, and more, if the acreage continued to be grown each year is a fair criterion.

As a money-making farm crop it certainly heads the list for our locality, and this is the case in many sections of Ontario at the present time, which is a fortunate thing for the bee-keepers, as it is the only source in many places that we have for honey in any quantity. My grandfather, an enthusiastic bee-keeper, was one of the pioneers in the business of alsike-growing for seed; and at first, getting it for the honey alone, he had the satisfaction of seeing hundreds of acres grown near him each year for quite a long time before he died. The price of the seed has not been much under $5.00 a bushel for many years, and for the past three seasons it has run from $7.00 to $9.00 and even higher. The yield varies from three to ten

FINDING THE QUEEN IN A NEW SWARM; HOLLAND.

bushels per acre, and for eight consecutive years before I left the old homestead our average was seven bushels to the acre. The best crop was when we had a little over 100 bushels from ten acres, the seed being sold for $7.00 per bushel. These yields are away above the average, of course; but the farm referred to seemed to be exceptionally adapted to the plant. While I do not know how much of the country is adapted to the growing of the plant for seed, yet it certainly behooves bee-keepers to see if their particular locality is fitted for its production, for as a honey-producer it is certainly par excellence.

A SIMPLE PLAN FOR BUILDING UP WEAK COLONIES.

At this season of the year, naturally some of the many plans for saving very weak colonies are sure to be tried by beginners and others. I have generally been fortunate in not having many of these weaklings; but on some occasions I have tried some of the plans advocated, generally with but indifferent results, to say the least. For the past four or five years I have been using a very simple plan, when there was any occasion for saving a weak nucleus, that is so safe and absolutely sure that I give it here in hopes that some one may be benefited.

Find the queen of a very strong colony and set the comb aside with Her Majesty. Then carry over some of the remaining frames with adhering bees, and shake before the weak nucleus that it is desired to save, having at first provided a runway for the bees to crawl into the hive. The old bees fly back to the old stand, and the young ones go into the weak colony, giving the very best kind of help that it is possible to get. More than one colony can be drawn from if necessary, and it is surprising to note the difference in the weakling in a few days' time —no brood chilled, no queens lost, no fighting, in fact, no trouble of any kind, and you are absolutely sure of the plan being a success every time. One time I went to an out-apiary about the first of May, and in looking over the yard I found a small nucleus with a queen bought the fall before. They were just as nearly gone as could be, without being "gone" altogether—probably not more than 50 bees left, and the queen was found crawling off at one side of the combs alone. A number of young bees were shaken in front of the hive as described, with some misgivings as to the result; but when, two weeks later, I came back, I could hardly believe the change that had taken place. If you have any weak colonies, try this plan and see if it is not a good thing for the purpose intended.

Mount Joy, Ont., Can.

[Large quantities of alsike are grown in this locality, and we have yet to hear of any complaints like those mentioned above. On the contrary, our farmers say that it makes splendid hay, especially when mixed with timothy or the other larger clovers. We can't refrain from feeling that your farmers have

"notions" that lack actual proof. Let's have this subject aired, and let the truth hit where it may.—ED.]

CARPENTRY FOR BEE-KEEPERS.

Planes.

BY F. DUNDAS TODD.

In order to handle a plane intelligently it is essential to know something about its construction. This fact was brought home to me very emphatically when I invested in my first outfit of tools. Somehow the plane did not seem to work perfectly, so I decided it needed sharpening. I removed the cutting blade, released the cap-iron, or chip-breaker, and carefully proceeded to sharpen this. Then I put the combination back into place upside down and tried to plane a board with the chip-breaker. When it came to handling tools I was the biggest duffer in the whole of Uncle Sam's immense territory, even if in some other lines a few people thought I was real smart. One thing I do deserve credit for: I generally know that I don't know, and on such occasions I dig right out for information.

Take a plane and lay it beside you and I will try to teach you what I learned at that time.

The plane-body is made of either wood or iron. In front is a knob on which the left hand rests; at the end is a handle the right hand grasps when the plane is in use. Anybody could guess that much. Extending from the bottom of the plane to above the handle is the cutting blade, which is clamped in position by means of an iron lever which is made up of two parts—the lever proper and a movable thumbpiece at the upper end. To get out the cutter we must first remove the lever, and this is done by lifting up the thumbpiece, then withdrawing the lever from position. We can now see that the lever is held in place by means of a screw set in the body of the plane, also that this screw is really the fulcrum of the lever. In the practical working of the plane this screw deserves more attention than it ordinarily gets, because by it we are enabled to regulate the pressure required for the best working of the plane, as by driving it in we increase the pressure; by withdrawing we ease it. As we shall see later on, much depends on the nature of the wood, whether hard or soft.

Now remove the cutter. It is really a chisel of equal thickness throughout, tempered and ground, and sharpened at the lower end. Fastened in front of it is the cap-iron or chip-breaker. It is the business of this iron to give a sharp upward direction to the shavings or chips so as to keep the cutting edge of the plane-blade free, also to prevent splitting or tearing in front of the cutter. The decided curve at its lower end is intended to snap the fibers and divert the course of the shaving as soon as it begins to run up the face of the plane-blade. In other words, the shaving is caught by the cap-iron, and bent and broken before it can be converted into a lever. The chip-breaker must be on the side opposite the bevel of the cutter. Its distance back from the cutting edge depends on the kind of wood that is being worked, and will be dealt with later.

In use, the cutter rests on a casting called the bedplate, which is held in position by means of two screws. In front of this plate is an opening in the bottom of the plane-body called the "throat," through which the cutter projects. The bedplate may be moved forward or backward so as to vary the width of the throat.

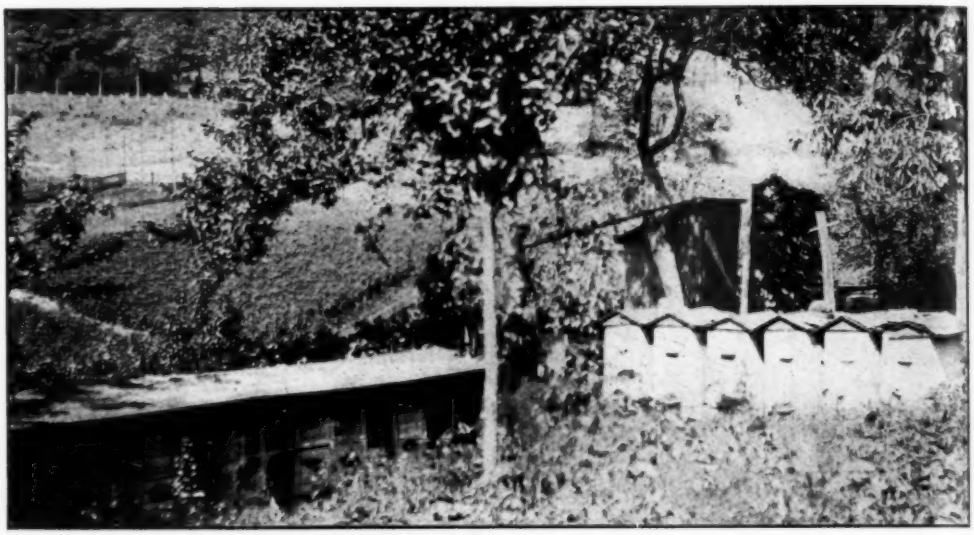
There is a mutual relationship between the width of the throat aperture, the distance of the chip-breaker from the cutting edge of the blade, and the firmness of the pressure exerted by the lever upon the cutter, this being determined by the quality of the wood that is being worked. Broadly speaking, with coarse work on soft wood set the chip-breaker ⅛ inch back of the cutting edge; set the bed-plate well back to insure a wide opening of the throat so that the thick shavings will have free passage, and have medium firm pressure given by the lever on the blade. In the case of fine work set the cap close to the end, $\frac{1}{32}$ inch for ordinary work, but as close as $\frac{1}{64}$ inch for fine work on hard wood; then narrow the throat by pushing forward the bedplate, and, last of all, drive in the lever-screw. The shavings will be so fine that the plane will really be acting as a scraper.

Behind the bedplate is a brass screw by which it is possible to regulate the thickness of the shaving. With rough work we can save time by taking deep cuts; but in finishing it is wise to make thin shavings.

Under the upper part of the plane-blade, and in front of the handle, is located a lever that works sidewise. By it the cutting edge of the blade can be brought into position exactly square with the bottom of the plane, if it should be out of true when the plane-blade is first clamped down. Again, in the first stage of smoothing a wide rough board it is often advantageous to set the blade awry so as to work in grooves rather than in even cuts, and the lever readily permits the necessary adjustment of the cutter to the desired angle. The final smoothing is, of course, done with the blade square to the bottom surface of the plane.

So much for the construction of the ordinary plane and the possible adjustments of its many parts. The average bee-keeper will be practically limited to soft wood in his carpenter work, and it will pay him well to find out by trial the proper width of throat, the best distance of chip-breaker from the cutting edge, and the tightness of lever pressure for his average work. When a job in hard wood turns up, as it will do sometimes, the necessary changes can, of course, be made, and then the plane can be reset to the former adjustments.

Boards smoothed on all four sides are so common nowadays that the average amateur



BEE-SHED OF HERR EBEL, CHARLOTTENBRUN, GERMANY.
Mr. Ebel is president of the Silesian Bee-masters' Association.

carpenter has little more use for the plane than to smooth edges. My own carpentry work consists principally in sawing boards into suitable lengths and reducing them to proper widths. Very rarely do I have to smooth a surface or reduce in thickness. From packing-boxes I secure a selection of boards of practically every thickness from ⅛ to ¾, and it is only once in many moons I can not find in my scrap-heap a board that I can not use by shortening and narrowing.

I have told how to saw to length, so I will, therefore, conclude this chapter with a few general remarks about planing to a desired width.

All boards have two faces, two edges, and two ends. In working we must always choose one of each of these as our starting-point—the face, edge, and end to work from, and those so chosen are called the "working face," "working edge," and "working end" respectively. Suppose you have a six-inch board that you wish reduced to 4½ inches. You begin by selecting the best finished edge as the one that you are not to touch. This is the working edge, and all measurements should be made from it. Using your set-square, set off 4½ inches from the working edge, marking with a pencil; and if the board is more than a foot long, set off the distance at least three times so as to insure accuracy. Then with a straight-edge (in my case this is usually a piece of board that I know is straight, tested by squinting along it, or by resting on the bench) join the pencil-marks with a pencil-line. As directed in a previous article, trim close to the line with a sharp hatchet.

Though a board has two ends, there is only one direction in which it should be planed. Very rarely do the fibers run parallel with the edge of the board. They generally run slightly at an angle. If we so place the board in the bench-vise that the fiber runs downward and away from us, then the plane blade will tend to tear below the general surface; but if the fibers run upward they will be cut through like stalks of grain. The way the wood splits while trimming readily shows which end should be turned toward us for planing. In the case of undressed lumber one has merely to pass the hand over the face or edge of the board to learn how the fibers run. The plane should travel in the direction that is most pleasant to the hand.

It is when doing rough smoothing that one learns most readily the importance of proper adjustment of the bedplate and chip-breaker; for if these are not in proper relationship to each other there will be various kinds of trouble. For instance, the shavings may choke up the throat of the plane and stick between the chip-breaker and the blade. This choking is almost certain to occur when one is working against the grain of the wood, and the preventive is to turn the board around. But should the choking happen when planing with the grain, then the cause is either too narrow a throat or the chip-breaker is set too near the cutting edge of the blade. Of course it is assumed that too deep a cut is not being attempted.

We all know that a knife or razor cuts more effectively when it is not held at right angles to the direction of the stroke, but slightly inclined, and, better still, if a sawing motion be imparted to it. It is impossible with a plane to get motion in more than one direction, but we can considerably incline it to one side, the left. The right forward corner of the plane will, in consequence, always be a trifle ahead of the left, and an examination of the shavings made by inclined and

straight-on planing will soon show the advantage of the former.

The force used to push the plane should be largely got from body movement rather than from arm push. In doing rough work, grasp the handle with the right hand and the front knob with the left, and endeavor to press equally with both; but in the fine finishing strokes, where one is desirous of getting a long even surface the left thumb only should rest on the knob while the fingers of the left hand should project downward below the plane, lightly touching the face of the board.

Squareness of edge to the face of the board is, of course, tested by using the try-square, running it from end to end of the board. To test for straightness, squint with one eye along the edge, toward the light.

To many this will seem quite an unnecessary story to tell about a plane; but it gives but a small part of what I had to learn after I was forty years of age. It took me some months to learn how ignorant I was, and some more to dig out the information. My endeavor is to save the time of many thousands of readers by putting them through both degrees in one initiation and making the ceremony a mighty brief one at that.

Victoria, B. C.

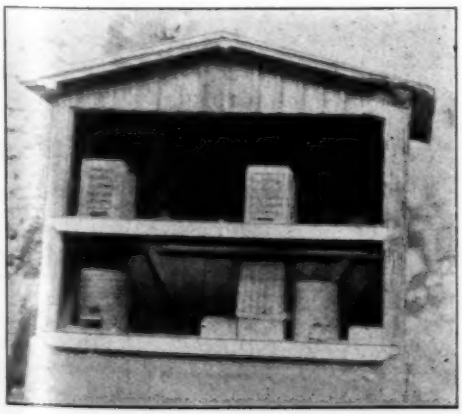
To be continued.

BEE-KEEPING IN GERMANY.

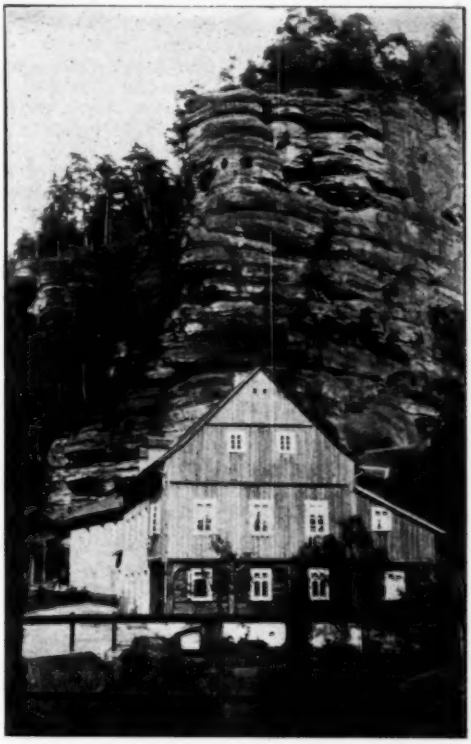
BY E. KRETCHMER.

The enclosed views are some that I took in Europe. Nearly every one, except those that use the straw hives, use the Berlepsch frame three tiers high, frames hanging crosswise of the entrance. The hives have glass doors in the rear, and are always set close together under a shed. Twenty-five pounds of extracted honey per colony is regarded a good yield. I tasted some of the heather honey. It does not have a very pleasant flavor, for it tastes much like honey-dew.

Council Bluffs, Iowa, Jan. 2.



BEE-SHED IN AUSTRIA, ABOUT 200 FEET UP ON A CLIFF OF ROCKS.



AN INCLOSED BEE-SHED IN FRONT OF A HOUSE IN BOHEMIA.

A SUITABLE BEE-DRESS FOR A WOMAN.

BY MISS EMMA WILSON.

Dear Miss Wilson:—I am anxious to find out if there is some material a woman bee-keeper can make a suit from that will not be uncomfortably warm to wear, and at the same time render one comparatively safe from stings. During my bee-keeping I have worn thick heavy garments for protection till I fairly dread the approach of the swarming season because of the heat I must endure while hiving them. I wrote the A. I. Root Co., and they referred me to you. If you can suggest any thing about material to be used, and the style for making such a garment as I have mentioned I shall be very grateful.

Cranston, R. I., April 7. MRS. MARIA J. EARLE.

A suit made of duck, linen, gingham, or calico is all right, and a shirt waist with some light-weight worsted skirt makes a very good work-dress. Wear a divided skirt made of the same material as the dress. If made full, in very warm weather you need not wear any under-skirt; also a pair of leggins, starched stiff, to reach from your shoes to the divided skirt. Pull the divided skirt well down over the leggins so no adventurous bee can find its way inside.

Of course the divided skirt is finished at the bottom with an elastic. If it's too much bother to make the linen leggins you can buy a pair of canvas leggins, army style, and cut them over to fit you; but they are warmer than the home-made linen ones, and one is about as safe from stings as the other.

Sew a pair of white sleeves to the tops of your gloves, having them long enough to

reach well up over your shoulders. The sleeves cut from men's wornout shirts, if the sleeves are whole, do very well, and save making. If not long enough you can piece them out. Have the sleeves fit rather closely around the shoulders, so the bees can not crawl inside. Fasten them together in the back with a piece of white rubber tape an inch wide and four or five inches long, sewing each end of the tape to a sleeve. Fasten in the same way in front, only, instead of sewing one end of the tape to the sleeve, work a buttonhole and sew a button on the sleeve. In this way your sleeves and gloves can be slipped on or off quickly, and are perfectly safe so far as stings are concerned. A big apron (one made of denim is good if you don't think it too warm), with a couple of good-sized pockets finishes up the suit.

Now, if you have a good bee-hat with a veil sewed securely on the edge of the brim, and a rubber cord run in the bottom edge, and pull the veil down taut in front, and fasten with a safety-pin, I think you may feel pretty secure as to stings, and not suffer very greatly from heat either.

Write, and let me know how you like it.

Marengo, Ill.

[A divided skirt for work among bees, for women, is neat and sensible. There are some who would hesitate to wear them, perhaps for fear they would look "outlandish" or "mannish." The gymnasium suits using the divided skirt, worn by college girls in their athletic work, are neat and pretty; and for bee-yard work they would add greatly to the comfort and convenience of our lady bee-keepers. Perhaps some one would be willing to send us a photograph of a good suit.—ED.]

"SHAKER BEES."

Two Possible Explanations.

BY LT. COLONEL H. J. O. WALKER.

On page 830, July 1, 1908, you invite opinions as to why young worker bees are to be seen gyrating on the combs. I would submit at the outset, that, though they run round in irregular circles, and may even, in that sense, be said, as Dr. Miller terms it, to "waltz," they are essentially "shakers." It must, I think, be evident to any one who observes them closely that they are restless and uncomfortable, and anxious to shake off something disagreeable. Their action closely resembles that of a dog just out of water. I am at a loss to imagine what may be the indications from which, according to the editorial note, p. 830, it has been inferred that the discovery of a fresh source of honey or pollen is being announced to the hive in so clumsy a fashion. From the first spring day's yield of pollen, and on through the summer honey-flow till quite late in autumn, you may see the shaking, and it continues long after the sun has set and bees have ceased to fly. I have seen a bee shaking briskly on the surface of a swarm cluster.

Three annoyances suggest themselves as possible causes—parasites, wax scales, and pollen. In our temperate climates the first-named so seldom affect the healthy worker that they may be dismissed. The first observer, I believe, to suggest wax scales as a cause was the celebrated English surgeon, John Hunter. In his "Observations on Bees," published by the Royal Society in 1792, he writes: "We very often see some of the bees wagging their bellies as if tickled, running round and to and fro for only a little way, followed by one or two other bees as if examining them. I conceived that they were probably shaking out the scales of wax, and that the others were ready upon the watch to catch them, but I could not absolutely determine what they did." Except that, in my humble opinion, the thorax is thoroughly included in the shake, the description is quite accurate, and, in spite of constant watching, my own observations have been no more successful than Hunter's. Your correspondent, p. 830, "saw one of the bees pick up a small wax scale after the shaker had passed away." He does not say where the scale was lying, and, as I understand him, did not see it leave the bee. At certain seasons loose wax scales are plentiful in a hive.

I do not understand why a worker should seek to remove wax scales in so rough a way, when, provided they are so far developed as to admit of mechanical removal, it can be effected as usual by employing the hind-leg pincer. But my chief reason for refusing the wax-scale theory is that shaking is quite common at the close of autumn, when even voluntary wax secretion has ceased for the season, and loose wax scales are no longer to be found on the floor-board. In emphasing the word *voluntary*, I admit that, in the season of swarming and abundant honey-flows, wax is secreted independently of all clustering by the young workers. It may be remembered that, in his treatise, *Melisselogia*, London, 1744, the Rev. John Thorley tells us how he was led by the unusually bulky appearance of a home-returning bee to capture it and so discover the adherent wax-scales; and others have since then confirmed his observation. But no foraging worker bee will be found in autumn secreting wax.

Turning then to pollen, we find, in my opinion, a plausible explanation of the puzzle, and I suggest that the vigorous shaking is the bee's effort to get rid of minute grains of pollen which are interfering with the action of the spiracles in thorax and abdomen by means of which it breathes. Shaking begins with the opening of the pollen season, and ceases with the end of it, and traces of pollen can be detected on most of the shakers. Indeed, many of those workers that come in thigh-laden with it can not wait to deposit their burden, but turn at once to shaking. Then, more than at any other time, are the neighboring bees most

interested; and if the shaker stops for a moment they run in at the pollen, backing sharply out of the way when she sets to work again. Centuries ago this peculiarity was noticed by Aristotle. "But when," says he, "they arrive at the hive they shake themselves, and three or four bees follow each of them." Thus the translation before me reads; but in the original the word used means *they shake off*, and from the context this seems to refer to the usual pollen load, so that the writer connects the presence of pollen with the shaking.

Whether or not I have solved an interesting problem in bee-life, the explanation offered seems to me fairly reasonable. The pollen might well be in one way or other a source of irritation. If, in support of the wax-scale theory, it be objected that only young bees, the natural wax-producers, are seen shaking, I would reply that old bees seldom gather pollen, and that, as they have lost or worn down many of their hairs, it would be less likely to adhere to their bodies; moreover, experience may have taught them either to avoid the obstruction or to endure it patiently.

Leeford, England, Aug. 12, 1908.

NITROGENOUS FOOD FOR BEES.

Meal as a Substitute for Pollen.

BY T. P. ROBINSON.

In the April 15th number the editor gives an account of bees annoying neighbors in seach of nitrogenous food which they wish to use as a substitute for pollen. Some five years ago one of my renters, who lives some 300 yards from my apiary of 100 colonies, saw fit to feed cotton-seed meal and hulls to his milch cows during the winter; and as the bees fly quite a good deal here during January and February they invaded his cow-troughs and barn, and carried off quite a good deal of it, I judge, for they worked on the meal for several weeks. This neighbor was a good fellow, and never said a word about it until months afterward, then told me of it. I told him that I was sorry for it, and that the bees were in search of the meal to use for pollen. The bees never interfered with his stock, for he milked at night and in the morning when the bees were at home. I always sweetened this neighbor with several buckets of honey, which kept his temper in proper trim.

This brings to mind another instance in which the bees invaded a barn belonging to a Bohemian. The cause of the bees' invasion was oat and millet meal, with wheat bran added, which he was feeding. On finding the bees swarming around in the barn and all over the feed, the foolish fellow decided to whip the bees out and run them off at the noon hour, when the work stock were in. This rough usage, together with a tendency to rob, so enraged the bees that they fell to stinging every thing in sight, and badly stung his stock before he could run them from the lot. As good luck would have it, the bees belonged to the man himself, who promptly sulphured them that night. He knew nothing of bees at all, yet kept six or eight box hives to get honey for his own use. I knew the man, and was told this about two years after it happened.

Since my own experience as above narrated, I have kept a supply of wheat bran in some building accessible to the bees every winter. During this winter I kept a supply of wheat bran in my hive factory within a foot of the saw-table, right at the door, where the bees would have a straight flight to their home. They would swarm over this bran every fine day in January and February, and the first part of March. I would stir up the bran so as to bring the finer parts of it to the surface so the bees could get at it.

Bartlett, Texas.

BEES ANNOYING NEIGHBORS

By Working on Oatmeal.

BY GEO. N. COULSON.

About the 15th of last March a lady living two blocks from my apiary called on me, and, in a rather excited manner, requested me to come quick and take my bees away from her house, stating that they had taken possession of a box on her back porch, and she was afraid to allow the children to go out there to play. I told her that the bees must surely belong to some one else, as I thought mine were all at home; but when she reminded me that I was the only one who had bees in or near town I had to promise to investigate; and on accompanying her I found bees pouring in and out of an open box that would hold about two bushels. As the good lady insisted on their immediate removal from her porch I seized an old horse-blanket, threw it over the box, and carried all out into the street, telling her I would return the box in the evening after the bees left, which I did, and an examination of the box showed that it contained damaged oatmeal that her husband, who was a clerk in a large grocery, had brought home to use for chicken feed. I kept my bees at home by putting out a plentiful supply of oatmeal and graham flour that the bees seemed to enjoy for several days.

SHAKING ENERGY INTO BEES.

I have also had a little accidental experience in shaking, or, rather, jolting some energy into bees. About the last days of January I bought an apiary of 28 colonies of hybrid bees. They were hauled in a common lumber-wagon a distance of seven miles over a rough road, then shipped by express over 150 miles, and opened up alongside of bees, both hybrids and Italians, that had been wintered on their summer stands. It has ever since been very plain that the bees that were shipped are out earlier in the morning and later at night, and in every way display more working energy than the bees that were undisturbed. This has been so marked that I have asked of the Oklahoma bee-keepers,

through an Oklahoma journal, to account for it. The bees were shipped in Danzenbaker hives, and I will say that, on account of closed ends to the frames, and the frames being fitted solid with comb, I regard this as an ideal hive for the rough handling of bees or for shipping long distances. Of the 280 combs in the 28 hives, not a single one was broken or misplaced in the hive.

Cherokee, Okla.

POLLEN AND BROOD-REARING.

Sugar Syrup Fed During a Pollen Dearth will Not Stimulate Brood-rearing.

BY ALLEN LATHAM.

Not many months ago GLEANINGS had something to say about turning syrup into bees in late winter and early spring, and selling the same bees at the spring prices. On paper this shows a good profit. I may err, but I recall nothing said about the supply of nitrogenous food in the carrying-out of this enterprise. Were the bees to depend upon their stored-up supply of pollen, or were they to get it from early flowers, or were they to rear brood without pollen?

When the other conditions are right, bees can be forced into heavy brood-rearing by the stimulation of warm sugar syrup. This is true in early spring if the combs contain an abundance of old stores of pollen, or if the weather permits the gathering of ample quantities of new pollen.

In the spring of 1903 I had a single-comb observation colony which I had wintered successfully. This little colony was fed and kept warm through March. The bees were able to gather pollen frequently, and bred up so fast that a swarm was cast on the 11th day of May. The earliest date other than that was the 21st day of May, and all other dates for such a colony to swarm have been in June. Those latter springs were not propitious; and, though warm syrup would start brood-rearing, it would not progress, often stopping with the laying of the eggs. Not till the natural supply of pollen set in would the brood-nest expand rapidly.

The present spring, with its frequent cold winds, furnishes further evidence of the bearing of the pollen supply upon brood-rearing. My let-alone colonies on the hills, with their large well-stocked brood-chambers, are now (May 10) strong enough to swarm, not only covering their nine combs but clustering in the surplus apartment. The home colonies, with their smaller brood-chambers, and manipulated on another plan, have a different story to tell. Many are in the infancy of their strength, and not a few are numerically worse off than in March.

I glanced at some of these colonies in April, and found combs destitute of pollen. In many cases heavy breeding in fall had left but a scanty supply, while manipulation in others had changed the natural balance, so that this spring found certain colonies cut off from the rearing of brood because of the lack of the nitrogenous food supply. The minority are reaching swarming strength: the majority can not take advantage of the ample pollen supply because of their present numerical weakness.

This weakness came from the incessant call for pollen in the early days of April. Nearly every day the winds were cutting, apparently coming from distant fields of snow and ice. Much sunshine had brought out numerous flowers, and the bees were out for the pollen. They never came back.

It would be useless and foolish to try to stimulate brood-rearing under these circumstances. No amount of syrup would fill the bill. Better far to check the energies of the bees along that line till pollen-gathering can be carried on with safety. Such checking would conserve the bee-forces and the stores.

The experience of this spring has still further confirmed me in my belief in one or two maxims which have been often reiterated. Abundant stores in the fall, and a good queen, will do all that can be done in the spring. By stores I mean pollen as well as honey. Though I prefer the bees to pass the winter with little pollen uncovered, I want quantities uncovered in early spring.

In a normal colony in this locality the fall finds the following conditions present. A brood-chamber has a spherical portion, near its lower edge, of empty comb. Around this empty-cell sphere, especially back and above, is a concentric ring of fall honey with little pollen underlying it. Around this ring is another which has several pounds of pollen underlying it, which pollen was stored and preserved under honey in the summer days when the queen's prolificness was beginning to decline. Then, last of all, will come more or less clear honey.

Winter uses up the fall honey; and as little pollen is uncovered there is but little brood-rearing. Late in February the bees begin to dip into the ring of pollen, and breeding will go on apace. Soon honey and pollen will be used equally fast. By the time the last ring of honey is reached, the bees will be getting out for new honey and new pollen.

Such is the normal condition in my let-alone hives, as I have verified again and again. These colonies with their undisturbed brood-chambers are, with few exceptions, ahead of my home colonies in early May. I think, therefore, that any scheme to turn syrup into bees in early spring, unless supplemented with some suitable pollen supply, will give discouraging results.

Norwich, Conn.

[GLEANINGS has taken no particular stand on this matter of feeding, except to say that the majority of the evidence of late strongly supported the statement that bees should be fed liberally in the fall — enough to last till new honey came in, rather than to feed sparingly in the fall and again in the spring. Of course it would be understood that there would have to be a supply of nitrogenous food also, or there would be little or no brood-rearing.—ED.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS

TROUBLE IN INTRODUCING.

I am having trouble with the southern-bred untested queen I bought of a breeder some two or three weeks ago. I introduced her in the usual way, the colony accepting her seemingly peaceably, which fact I wrote you. After two days from the time she was released I looked into the colony to see if she had commenced laying, and found her balled but with no eggs. I released her quickly, placed her in the cage again, put the cage upside down between the top-bars in the center of the hive, and left her thus for about 48 hours. Then I released her again and watched her carefully, and all seemed to go well for about two days more, when, on opening the hive again, I found her balled and still no eggs. Again I caged her as before, leaving her caged about a day, when I took a frame of mostly sealed brood from another hive and placed it in the queenless colony, thinking it might encourage her to lay, and at the same time help to keep up the strength of the colony, which has been without a laying queen since last fall.

For about 48 hours all was peaceable in the hive again, but I could not see that she had laid any unless on the edges of the comb of brood we gave her; but we found her balled again. Tiring of the game we caged her again and left her in the hive, and—well, here we are to you for advice.

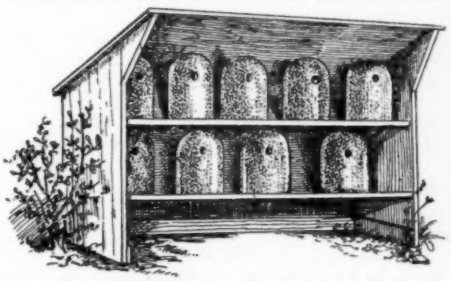
The queen seems well and lively, but in size and appearance she looks almost like a virgin. But it is not unusual for mailed queens to look that way for a few days after being released. I have introduced a good many queens, but have not had any act quite like this. If you could advise me what to do in this case we should appreciate it very much. W. P. KEEFER.

Summerville, Pa., May 9.

[There is a possibility that she might have been a virgin, she having been put into the cage by mistake of the breeder. If she were such, of course he should replace her. There is one thing you did that may have caused the trouble of balling. It is bad policy to open the hive just about the time the queen is to be released. If you will refer to the directions usually sent you will see it is not advisable to release the queen at the time of opening the hive, for very often the disturbance causes the bees to ball her, even one that has been in the hive for a year or so. A colony that has been queenless for some length of time is very sensitive, and the very act of opening the hive not infrequently causes the bees to attack the queen, especially if she is just released. This would be true of a laying queen, but a virgin queen the bees would be likely to attack and kill if she were four or five days old, and the colony strong, almost as soon as she was released. Experience has shown us that it is better to let the bees release the queen themselves, and not open the hive for several days. To do this the bees are supposed to gnaw away at the cardboard; and if they do not get this gnawed away, it is removed by the apiarist to expose the candy; then the bees should eat out the candy, thus releasing the queen in from five to twenty-four hours. The bees must get in a state of quiet before the queen is released.—ED.]

BEE-KEEPING IN NORTHEASTERN GERMANY.

In traveling by rail through Germany I noticed that the northeastern section, approaching the North Sea, is mostly a level country, used for pasturage and hay, and the people are chiefly engaged in dairying. There are, however, here and there, great stretches of elevated sandy land, densely covered with a low species of heather, that is a mass of purple bloom throughout summer and autumn, and here many people find it profitable to give some attention to bees. It is not uncommon to see two or more hives near a peasant's cottage, and occasionally you will see a collection of from fifteen to fifty hives cosily housed in an open shed built for their protection. These sheds are mostly made with two shelves, one above the other, so as to accommodate a double number of hives, and are well closed in the rear. Sometimes the



A SMALL SHEDDED APIARY AS ONE MAY SEE IN NORTHERN GERMANY.

sheds are built like a house court, with a locked door entrance, thus protecting the bees from robbers as well as from annoying or injurious winds. The hives appear like a large closed stone or cement jug, with the entrance near the top, as indicated in the sketch. How the honey is taken out I can not say. It may be that, like the jug money-banks for children, those honey-banks have to be broken to get the honey stored in them.

LaPark, Pa. GEO. W. PARK.

BUTTERMILK BUCKWHEAT PANCAKES VERSUS THOSE MADE WITH YEAST.

"There are more ways to the woods than one" is also true when it comes to making pancakes; and, I would add, there is still a difference between getting to the woods and making pancakes, which will be appreciated when you eat the pancakes made with sour buttermilk. Everybody will probably agree with me that there will be no difference in the woods, no matter which road you take to

get there. When we get into the thick wood, it's woods! But how about the pancakes! Yes, we have eaten pancakes made of yeast, such as the "lightning," but never can they compare with such as are made with good thick rich sour buttermilk, a little salt, and buckwheat flour, and then made light with soda. We do not want the batter too thick; it must spread out easily upon the hot griddle. There must also be no soda odor perceptible when or after the cakes are baked. Experience alone is the guide as to how much soda is needed to neutralize the acid in the buttermilk. Of course, the older it is the more soda is required. We start the batter the evening before it is wanted, then stir in the soda just before baking. The batter left over is saved for the next meal, replenished with the same kind of buttermilk, and flour and soda added as already stated. We want no water. It is not necessary to stir up the batter the evening before. It may be done just before it is wanted if the buttermilk is right. Of course, if one does not live in the country he may be unable to obtain the genuine buttermilk, and he will have to put up with what he can get. We here have real cows—can eat real butter, and have the real stuff for making pancakes, which will touch the spot that no yeast pancakes can. We also have the real cream and the real honey to go with the real buttermilk pancakes—inseparable if you want a real treat.

I am aware that a great many people eat yeast-raised milk pancakes and pretend to enjoy them; but when such have once eaten breakfast with me they always regret that they can not live the time over again they think they have wasted in eating yeast-raised pancakes. F. GREINER.

Naples, N. Y.

BEES IN POSSESSION OF A BARN; NO BROOD IN HIVE EXCEPT QUEEN-CELLS.

Page 221, April 15, GLEANINGS, I saw the editorial on "bees and neighbors." I had a similar case at about the same date. Mr. Ansbaugh, whose barn is about 40 rods from my apiary, called to me and said, "Say, your bees are over here in my barn—I guess about two bushels of them; and they won't let me in." He was good-natured about it, and at sundown his barn was again in his own possession.

Another peculiar case which I had was a colony which died of starvation during last winter. On opening the hive I found one queen-cell where the queen had hatched and gone. On another comb I found three queens in sealed cells which would have hatched, or, rather, emerged, in two or three days. This was all the brood there was in the hive. Is this unusual, or does it often happen?

I believe my bees have foul brood. How can I tell for myself? G. W. JOICE.

Montpelier, O., April 29.

[It seems very evident that the presence of the queen-cells in the hive that died indicated queenlessness some time before the colony succumbed. Before the queen died she probably left a few eggs, and over two or three of these the surviving bees constructed cells; but the spring being backward, the little colony was not strong enough to weather it through. The bees were getting old; and as they went out in quest of stores they possibly perished. Spring dwindling is probably nothing more nor less than old bees flying out and never returning. Unless there are young bees coming on in rapid succession the colony will dwindle down to nothing.

It is evident that the bees in the barn were after artificial pollen. This is the first year we have had reports of any thing like this, so far as we can remember. Natural pollen was very late in coming in, and the poor bees *had* to get something. If a single bee should find a little bran in the barn it would bring dozens of others just the same as if it had found a little sweet.

You will find a full discussion of foul brood on page 340, last issue.—ED.]

KEEPING SUGAR STORES AND HONEY SEPARATE; IS IT PRACTICABLE?

The following rather puzzling problem has arisen. Last fall I fed a liberal amount of syrup to each colony. They wintered very nicely, but some of the weaker colonies were killed by the severe spring weather after being placed upon their stands. A letter from home advises me that we now have on hand a larger amount of sealed stores than the bees can consume before the honey-flow. We need all of our combs in building up the colonies. Again, we wish to prevent the mixing of these stores with the honey. What would you advise me to do?

The clover around home is looking fine. A neighbor says that he has never had a finer catch of alsike clover.

CARL H. HANSON.

Madison, Wis., May 14.

[It will do no harm to let honey and sugar syrup mix in the same combs, providing that such honey is not later carried up into the supers containing sections; and providing, of course, that it is not extracted and sold as pure honey. There is no way you can separate this honey from the syrup, nor is there any way by which you can prevent the bees from storing honey along with the sugar syrup unless you use entirely separate combs, or extract those you have containing stores. —ED.]

BAIT-SECTIONS PLACED IN THE COLDEST PART OF THE SUPER; IS THE PRACTICE TO BE ADVISED?

My experience is that, if full sheets of foundation are used in the brood-nest, and bait sections are put in the center of the super above, the queen is sure to fill these bait sections with drone brood, as she has no room for it below. I get my supers filled more solidly by putting bait sections in the coldest part. Of course, if the queen had plenty of drone comb below, the results might be different. The only baits that I

have used in the center of the super are very small, and of such a nature that the queen can not use them. From two to four bait combs in the center of the super, without an excluder between, makes a little nest for the queen just to her liking. C. B. PALMER.

Bradshaw, Neb.

[Ordinarily the queen would not lay drone eggs in these baits if they contained nothing but drawn *worker* comb. In most localities bees would pay no attention to baits placed in the cold corners. If you are troubled much with queens going above you had better use queen-excluding honey-boards; then put your baits where they will do some good. —ED.]

CAN THE DOOLITTLE METHOD BE USED FOR EXTRACTED-HONEY PRODUCTION?

Mr. Doolittle, I have read your book, "A Year's Work in an Out-apiary," with much interest and will ask you for some advice. Can I use this method for extracting combs by tiering up the supers and then extract in the fall? I use divisible brood-chamber hives and only one size in frames six inches deep inside.

I would like to know how many visits you must make in winter for controlling bees in the cellar, and how this farmer's cellar was constructed according to fresh-air ventilation, size, etc. Further, if you use the entrance two inches high in the winter, is it not too much air for the bees?

This spring I shall build a hill-cellar for 50 or 60 colonies; and as lumber is very cheap in my country, I had thought of using this material for roof, walls, and floor by preventing the wood from rotting.

I would be pleased to hear if you will advise me to use lumber or not, and how to construct this cellar according to size and ventilation. EWALD OMDAHL.

Drammen, Norway.

[Mr. Doolittle replies:]

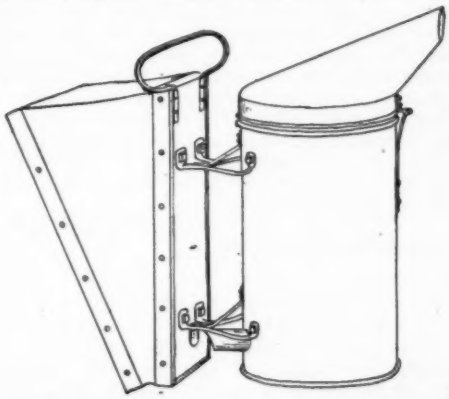
Yes, you can use the plan given in my book for extracting, either at the close of the season, in the fall, or extracting after each flow of honey, so as to keep the different kinds of honey separate. But if I were you, or any other who wished to run an apiary (or a single colony) for extracted honey, I would simply add story after story of combs as the bees needed, and do nothing else; for all of my experience, observation, and experiments tell me that, if empty combs are added to any and every colony as needed, not one colony in 50 will try to swarm. The plan as given in "A Year's Work in an Out-apiary" is for comb or section honey, and the work necessary for the production of comb honey is not required in producing the extracted.

2. The farmer's cellar is just like any farmer's cellar, and he uses it as he pleases during the winter. For the 30 to 50 colonies I winter there, I provide no extra means of ventilation, nor do I go there from the time the bees are set in till I go in the spring to take them out. If 100 or more were to be wintered, probably special ventilation would be needed. As a cellar built of lumber in this country would surely rot, I do not feel competent to advise in your last question.

Borodino, N. Y. G. M. DOOLITTLE.

A SMOKER BELLOWS PROVIDED WITH A HANDLE; A SCHEME FOR WINTERING.

I have one of your smokers on which I have put a wire handle that I think is very handy in carrying the smoker about.



I should like to have you see the way I pack my bees for winter. I use mulching from my horse-barn, and I pack my bees on their summer stands. In very cold weather the mulching freezes and does not thaw out until quite late in the spring, thus giving an even temperature. I have been very successful in packing my bees in this way.

Victoria, Ill. C. E. COLEMAN.

TO STOP BEES FROM WORKING AROUND CATTLE-FEEDING TROUGHS.

I have been troubled by bees working on cattle-feed for the last six or eight years, but have found a way to overcome it partly. There are two large cattle-feeders within a mile of my yard. When they are finishing their cattle for market, from Feb. 15 to April 15, they feed ground corn. The feeding is done in open feed-bunks, or troughs out in the yard. I have seen the corn in these bunks black with bees; and, because of the cattle fighting them, they sometimes become cross.

The only prevention seems to be to have a large bunk or two at home, and have plenty of ground corn in it whenever the day is warm enough for the bees to fly. My yard is in a large grove, well sheltered, and the bees prefer to work at home, and do not locate the neighbors' feed-yards if I have feed out the first few warm days. The bees work best where the feed-troughs are set on a slant, raising the north end of a fourteen-foot trough about three feet. This puts the corn in the warm sunshine, so the bees can keep it rolling down hill. They want only the finest flour or dust, and work best where the corn has not been ground too fine, but just crushed into pieces the size of rice. In

grinding it this way there is a considerable quantity of fine flour along with it. We get the best results by using a common feed-grinder or crusher, and grinding cobs and all, and mixing in about one-fourth oats while grinding. An apiary of 200 colonies will work over about ten or fifteen bushels in a day, and clean out all the fine flour; but on account of the weather they do not work more than a day or two a week at that time of the year.

We tried feeding sugar syrup and honey both at the cattle-yards and at home; but that did not stop the trouble. We also tried oat flour and white corn flour, which is put out by an oatmeal factory in Sioux City, but the bees would hardly touch it, as, in the fine grinding, all parts of the kernels seemed to be mixed together, and I believe the grain is sterilized or otherwise treated at the mill. As soon as the maple and elms are in bloom the trouble instantly stops.

EDWARD G. BROWN.

Sergeant Bluff, Iowa.

WHY SO MANY DEAD BEES IN FRONT OF A HIVE JUST OCCUPIED BY A SWARM?

Yesterday a swarm found its way into an empty hive which I had standing outside ready for use, and to-day I found about two quarts of dead bees in front of the entrance, and a tremendous amount of wax flakes such as we sometimes find on the bottom-board. Can you account for this? E. B. STONE.

Campbell, Cal., April 21.

[It is evident that the swarm, on entering the hive and taking possession, cleaned out a quantity of dead bees that were already in the hive. The very fact that you found more or less litter thrown out at the same time would seem to indicate that they were making a general job of housecleaning, throwing out all loose dirt, and, of course, all dead bees. We should doubt, however, if what you saw were "wax flakes," as bees are not likely to throw away good property like this. —ED.]

CAN BEES FLY BACKWARD?

An interesting question regarding the habits of bees has come to my attention, and I should be grateful if you or some of your workers could help to answer it. It is this: Can a bee fly backward? If so, how?

Dorchester, Mass. WM. H. STERNE.

[Bees can gyrate back and forth sidewise, and can also fly backward, but not on the same plane. When they do fly back it is on a *descending* line as if they were sliding backward down hill. We do not believe that it would be possible for them to fly backward on a horizontal line like the hummingbird. If you will watch the bees when they are just about to alight in front of an entrance you will notice, sometimes, how they will fly some four or five inches above the entrance, almost alighting on the hive, and then by a quick sliding down movement will slide backward on their wings, as it were, down hill, until they reach a plane about on the line of the entrance, when they will alight and crawl in.—ED.]

A COLONY 45 YEARS OLD THAT NEVER SWARMS.

Mr. A. M. Schaffner, of Derry Church, Pa., a man grown old in the bee business, and an honored member of the Lebanon Bee-keepers' Association, is the owner of a colony of bees 45 years old. This remarkable colony still occupies the original hive, which is a common box hive, much in use at that time. On top of this hive is a receptacle for three drawers like boxes for surplus honey. Each drawer holds, when filled, 17 lbs. of honey, which the bees fill every year, giving their owner about 50 lbs. of surplus honey. They still occupy the original combs; there is nothing done to them with the exception of putting on the surplus arrangement, and the taking off at the season. The most remarkable feature, however, is that they *never swarmed* to Mr. Schaffner's knowledge, but supersede their queen from time to time as it becomes necessary. How is that for a non-swarming strain? E. L. BROWN.

Lebanon, Pa.

INCREASE BY THE ALEXANDER PLAN.

I had planned to make increase this season on the lines laid out by the late E. W. Alexander—by putting the new hive on top of the old one, with excluder between, and raising up a frame with the queen on it; and then, when full of brood, separate the two. It works finely so far as I have tried it, except that there is sulking in the old hive while they are waiting for the young queen to begin laying. If some one could only devise some way to get a young queen matured and laying in the lower hive before separating the two the system would be complete.

Would it not be possible to have combs built from full sheets of foundation in the upper hive, without wiring?

Warren, Minn. ERNEST L. BROWN.

[It is hardly safe to use full sheets of foundation unless the frames are wired. Of course, one can use extra-heavy foundation without wires; but that would be too expensive.—ED.]

"TANGLEFOOT" PREPARATION TO PREVENT ANTS FROM GETTING INTO HIVES OR TANKS.

I often see notes of how to keep ants out of hives. We use around our trees, to keep Fuller's rose-beetle down (they eat the young buds), a preparation known as tree-tanglefoot. It is essentially the same thing as is used to make fly-paper. It comes in tin pails, and is doubed in a narrow band around the tree. I have used it to keep ants out of my honey-tank. I have never been bothered with ants in the hives. R. K. BISHOP.

Orange, Cal.

[This is a good suggestion. Our southern bee-keepers who are troubled with ants will please take notice.—ED.]

A PECULIAR WHITE PARASITE; WHAT KILLED THE BEES?

During last season I lost about half of my bees. The working bees did not appear to live as long as usual. I had ten colonies that became queenless within a few days in the latter part of May. Upon examining one of my queens that died this spring I saw parasites on her in the form of a small white louse. Will you kindly let me know what you consider advisable to do in this case?

Beyley, Ont., April 24. THOS. MCKEE.

[This was referred to Prof. H. A. Surface, Economic Zoologist at Harrisburg, Pa., who replies:]

Mr. Root:—Replying to your letter of the 11th, referring to a white parasite on a queen-bee that died this spring, belonging to Thomas McKee, of Beyley, Ontario, I beg to say that I agree that it is not *Braula cæca*, and I do not wish to risk a guess as to what it is. Evidently, there is something wrong. I should like to see specimens of it, when I can reply with greater intelligence, and shall be pleased to do so. I wish that all persons would be informed of the importance of keeping a watch for any unusual conditions, phenomena, pests, diseases, etc., and preserve specimens, illustrating the points observed, and sending them to some person who would be interested in studying the subject to the full extent. Of course, Dr. E. F. Phillips, in charge of apiculture at Washington, D. C., would be glad to receive such specimens as well as myself and others interested in this line. If your inquirer will kindly send specimens inclosed in some kind of box or vessel that will prevent their being crushed in the mail, we should be glad to examine them and give a prompt and detailed reply. I regret that, under present conditions, I can say nothing more.

H. A. SURFACE, Economic Zoologist.

Harrisburg, Pa., May 12.

SWEET CLOVER WHERE NOTHING ELSE WILL GROW.

I want to try sweet clover in this very dry part of the "panhandle" country. Should I get seed from a section where there is much rainfall or from a dryer one? I was referred to you. Kindly quote me seed, and give any suggestion you like. We have not had an inch of rain in the last five months, yet in the last ten years it has averaged 24.08 inches; last year, 19.09. We expect rain now at any time. We sow alfalfa in August. I sowed red clover last June, and it did well.

Canyon City, Texas, May 17. N. SCHEE.

[There would be no reason why sweet-clover seed grown in a country where there is rainfall would not grow just as well in a dry climate as seed grown in such climate. Sweet clover thrives where almost nothing else will grow. If the soil is absolutely dry it will not grow; but it will thrive nicely on some alkali lands where alfalfa will be choked out entirely. If you propose sowing it on the same land that you sow red clover and alfalfa it will grow of course. If the soil will not grow any thing but sage brush, you could hardly expect sweet clover to do much if any thing. There must be a rainfall at some time of the year; and if no rainfall, there must be some irrigation. We found much of it growing in Colorado up on the mesas on the western slope, where nothing else would take hold. When the alkali worked up through the soil it killed out the alfalfa, but sweet clover took its place.—ED.

AFTER ARTIFICIAL POLLEN IN A GRAIN-ELEVATOR.

In April, 1903, my bees were carrying pollen in large quantities; and, judging from the color, I could not tell where it came from. In the afternoon I was notified by an elevator owner, located about 40 rods from my apiary, that my bees were bothering them in the elevator; and, sure enough, they were there by the thousands, on their "hands and knees," digging away in a pile of wheat bran near an open door—the prettiest sight I ever saw in my life. Hundreds were at the inside of a closed window trying to get away with their load of artificial pollen. I opened the window, let them out, and requested the elevator man to leave the door closed the next day, when I gave them all the bran they needed in the apiary, which ended the trouble. ALBERT TIEN.

Falmouth, Mich., April 22.

UNITING THE WORKER BEES OF TWO COLONIES.

One large colony will make more than double the honey that two swarms, each being half its size, will store. The large swarm conserves the warmth so that it can draw out the comb, and thicken and store the honey with more efficiency than two small ones.

To utilize this principle the writer has a plan which he intends to try the coming season. He would like other bee-keepers to try it and write to him, so that results can be compared.

The plan is to place two hives with bees together side by side, and put a double width super above them, so that the working bees can form one cluster in the super.

If desired, the super can be made of two halves, so that one person can remove each half separately when filled with honey.

The writer will be glad to advise about any details with bee-keepers who may be interested in trying this plan.

WM. B. LEITCH.

Ridgewood, N. J., May 22.

BEES IN CAVES AND ROCKS; HONEY BY THE BARREL.

I took a colony out of a rock to-day, and secured a barrel of comb and honey. At another time I took a colony out of a badger-hole in the ground. It looks natural to see bees fly into a tree or in and out of a rock; but to see them go down into a hole in the ground is something new—to me at least. In this part of the country there are hundreds of colonies of bees in houses and buildings of all kinds, rocks, caves, etc. In one instance a colony of bees took up their abode in a chimney, and they remained there six years. I was once looking for a swarm of bees in a rocky hill, and suddenly two bees stung me on the chin. I slid down past the entrance of the cavity that held the colony in the rock. It took three sticks of dynamite to blast the rock away so that I could get to the bees. About one-third of the bees stayed in the cavity, another third went up into the air, and I guess the last third stung me. CHAS. S. KINZIE.

Riverside, California.

OUR HOMES

BY A. I. ROOT.

Think not that I am come to destroy the law or the prophets: I am not come to destroy, but to fulfill.—MATT. 5:17.

Think not that I am come to send peace on earth: I came not to send peace, but a sword.—MATT. 10:34.

I want to talk to you a little about law enforcement. It is getting to be such a common thing to evade and disregard the laws of our land that we are getting so we think nothing of it, comparatively. Even in our homes, in the family circle, laws are transgressed, but the transgressor is not punished. The mob that takes the law into its own hand, and breaks down our jails in order to punish some culprit, gives as an excuse that laws are a dead letter nowadays. Murders are committed in cold blood in plain daylight, but the murderer is seldom punished, or at least he gets only a very light punishment, especially if he has the money to employ skillful lawyers and attorneys.* We all know this should not be so, but still it goes on. Once in a while, it is true, a rich man is punished. If I remember correctly, a millionaire somewhere in California was put in prison; but it made a sensation all over the world. Just recently another millionaire who defiantly transgressed the law was put behind the bars in New York, and I hope he is there yet. In our present temperance crusade, people have been *astonished* (especially the saloon-keepers), to see the law occasionally enforced to the very letter. No wonder they were surprised, because they and their fellows had been transgressors so long that nobody expected them to obey the law or even make a pretense of so doing. Well, now, I want to quote something from a recent issue of the *Country Gentleman*, which, it seems to me, strikes at the very root of the matter. I read it very carefully at first, and then read it over carefully again. Finally I took it to prayer-meeting and read it, as I was to lead that evening. And now I want to submit it to the friends who read these Home papers.

PUNISHING A BAD BOY.

When a man came down from his office in a small city to the curb where he had left his bicycle on a warm day last summer, he found, instead of his wheel, a disreputable old rattletrap, and immediately notified the police of his loss. His friends made a great deal of fun of him for losing his property in broad daylight with a crowd on the streets, and said the thief must be very clever, but the man did not give up the thought of recovering his property. He was able to buy a dozen new wheels if he so desired, but he had an idea that the thief was not a stranger, and urged the police to be particularly active in looking for it. Several weeks went by, and at last he received the information that a boy of fourteen in a village some miles away had the bicycle in his possession, while the old one he had formerly used had disappeared. The boy was arrested and the wheel recovered, but the matter did not end there.

The father of the boy made all haste to the office of the man, and inquired what sum of money would settle the case. "I know how these things are managed," he said blandly, "and we will have it all over in a few minutes." But he found that the owner of the wheel was not in the market for a bribe. He informed the father that the case would be heard in court where it belonged, and the boy would have to take the penalty for his misdeed. Then the mother tried tears and hysterics and pleading, but the gentleman was obdurate. The mother pointed out that her son's career would be ruined, and that it was his first offense; so every thing demanded that proceedings be dropped. Then it was that the owner of the wheel, nettled by the scornful remark of the mother that he was a bachelor, and knew nothing about raising children any way, expressed himself clearly and forcefully.

"Madam," he said quietly, "it is because I want your son to have a chance in the world that I am determined to prosecute this case. I have investigated a little, and found that, since childhood, he has been under no restraint. He has disturbed public and religious meetings, committed petty thefts, been out many nights until after midnight, and neither of his parents knew where he spent the time. He has been a truant at school, disobedient at school and at home, profane, vulgar, and generally a youthful outlaw, without any steps being taken to restrain him, and now I intend to see that he has a chance to make a good citizen before it is too late." To the Reform Institution that boy went, and he is there to-day. The mother forsook her hysterics when she discovered that they did no good, and has been forced to see that, after all, law and order are fine things to impress upon youthful minds.

Not only did it benefit the boy in the case and give him a chance, but it stirred things up in that little village to such an extent that fathers and mothers began to sit up and take notice. They suddenly discovered that the next boy to get a chance in the Reform School might be nearer home, and it came to be quite the thing to get the youngsters home at dark, or know where they were and what they were doing. And mothers of the little ones realized as never before that the time to begin training was in babyhood, and gave more time and attention to home rule. The mothers who had considered themselves models of indulgence and loving sympathy with the little ones, suddenly found out that firmness and discipline are needed as well. It was a new idea in the community that a boy with an indulgent mother, and father who was too kind to punish, had had no chance to develop into a good citizen; but after a while they saw the reasonableness of the thing and profited by it.

Whether the boy turns out well or ill remains to be seen. The institution that shelters him has the reputation for turning out good citizens, and the bachelor who was instrumental in placing him there is hoping he may see the thief transformed into an honest, wholesome member of society. It has been done with just such lads, and it is not too much to expect that it will be again. At any rate, for the first time since he came into the world, he is learning to respect law and order, and to see that others have rights as well as himself. Under wise, kindly, strict discipline, he may learn self-control and how to make his life useful and happy, and that is more than he ever could have had at home.

HILDA RICHMOND.

Let me ask you to go back and look at the second paragraph in the above. I wish to call special attention to that father and his remark, "I know how these things are managed." This father, you see, was a man of age and experience. He understood how things were done when a crime had been committed; yes, he even said blandly, "We will have it all over in a very few minutes." He expected, likely, the man who had lost his wheel would be indignant, and he might mention a pretty big price before his wounded feelings would be healed. But the father had money, and he was prepared to pay it. O dear friends! it is, indeed, true, and it is the shame of our people, and the shame of our nation, that he who has the "wherewith" to pay may do almost as he pleases, and go scot free. We can thank God there are a few, however, who can reject "bribery," and refuse to be a party to it. This mother gives us a glimpse of the mothers

*By the way, this matter of graft, and letting the rich man go scot free, is not so modern a thing after all. David says in the 52d Psalm, 7th verse:

This is the man that made not God his strength, but trusted in the abundance of his riches, and strengthened himself in his wickedness.

who are like the fathers. She tried to explain that it was *her* boy; that they were people of respectability and influence, and (although she did not say it) *wealth*. It would be a disgrace to her family, and the matter must not be made public. It must be kept out of the papers. Just this morning I heard a bit of gossip. As a rule I do not listen to gossip; but there is a moral about this piece of gossip that fits right in here. I may not have got it right, but it does not matter whether it is right or wrong. Perhaps you have such things in your own neighborhood. Some young people went out to a dance or something of the kind. They were out late at night; and, even though this has been a prohibition county for years past, they carried along some beer. Some time during the night (or early in the morning) the horse ran off a bridge and broke the buggy; but when some of the friends who knew about it were watching the county papers to see what they had to say, we were gravely informed that the editors of our different county papers had all been persuaded to keep the whole transaction out of print. Now, as I have said before, this special occurrence I have mentioned may not have happened; but things of a like nature are happening, and the safety of our boys and girls—yes, the safety of our nation—actually rests on our turning the searchlight of the daily papers on just such things as these, and letting the law be enforced.

In our own town one of our prominent physicians gave a man a prescription to get some liquor. He said he wanted it for his wife, but he drank it himself as soon as he got out of the store, and came very near losing his life as a consequence. In fact, it was reported at one time that he was dead. The matter, after considerable discussion, was submitted to the Ohio State Attorney, and his decision was plain and clear that this doctor who wrote his prescription and the druggist who filled it were both violating our temperance laws. Not only that, our county paper tells us that all our doctors, or nearly all of them, have been violating the law right along. What shall we do about it? I shall have to confess that it is a pretty hard thing to send a boy to prison or even to the reform farm; but I agree with the writer of the above article that it is oftentimes the kindest thing that can be done *for the boy*, to send him there.

When I read the above article in the prayer-meeting the probate judge of our county was present, and he said his court was familiar with these things. He told us that in Norwalk, Ohio, his former place of residence, he knew of several boys who had been reformed, and made good men by simply sending them to the reform farm; and I distinctly remember one boy here in Medina who was in my employ. I always felt, however, that his parents and his home were more to blame than himself for his frequent transgressions. He was sent to the reform farm at Lancaster, O., and came back several years afterward. When he returned he showed me his hymn-book, and came to prayer-meeting, and let us know that he had learned to sing Gospel Hymns. If I am correct he is now a married man with children of his own, and a respectable member of society.

A few days ago I was asked to sign a petition; and although pretty nearly all the business men of our town had put down their names I felt obliged to decline, and I said to the one who presented it, "I know, my friend, this seems hard; but if it were my own son who had transgressed in a like manner, God helping me, I would say that he should go to prison that the majesty of the law might be sustained." This case was a little peculiar, for the young man and his relatives had paid up every copper of the money that was unlawfully appropriated.

POULTRY DEPARTMENT

BY A. I. ROOT.

THE "ROOT" INCUBATORS AND BROODERS.

On page 297, March 1, 1908, I mentioned and described the Root brooder, and I also told you that the inventor, although his name is Root, is no relative of the members of our company; but as we are a wood-working establishment, and also have a factory for working metals, we had undertaken to make his "heat-by-contact" brooder. Let me explain briefly that he has, up to date, sold about 1000 of these brooders all together, during the past three years. Only a part of them were made at our establishment. Well, there has never been a complaint of the brooder so far as I know. It has met with such success that some who first bought one brooder, later bought a second and even a third one, and perhaps more. In our Florida climate, as I have told you, I prefer a lampless or fireless brooder. There are times, however, when the chickens are first hatched, say during the first week, when a little heat is quite desirable, and I think it is better for the chicks. A jug of hot water or a hot brick does very well. After the sun gets up, a glass sash over the brooder, instead of the regular cover, gives heat enough. But there are circumstances, even in Florida, say during a cool cloudy day, when the sun does not shine, and when most of the chickens are out running around, when the weaker ones suffer for some kind of heat to warm up their toes and the rest of their little selves, for even under a hen the chicks sometimes have cold feet. Of course, a mother hen does this to perfection, for she broods them when they begin to peep, complaining that they are cold. A hot brick or a jug of hot water will do just as well; but if you had, say, a dozen fireless brooders it would be nice, even down in Florida, to have at least one Root brooder. Of course, there are many different opinions in regard to brooders.

I have given the above in order that you may not think I am inconsistent, or change my mind every little while. Here in the North, so far as my experience goes, I would prefer the Root brooder to any thing else—at least for the first week or two. After that, my opinion is that the fireless brooder will give better and stronger chickens in the warmer months. I am inclined to think they sometimes hover around the hot-water pipes when they do not need it.*

With the above preface I want to tell you that this young inventor, Mr. R. R. Root, has recently gotten out the Root incubator on an entirely new principle. You will see it pictured and described in GLEANINGS for Jan. 15, page 27. By rather expensive advertising, Mr. Root has succeeded in selling about 125 of these incubators; but, unfortunately (so it seems *now*), he sent them out before he had fully tested the full-sized incubator holding 124 eggs. As a consequence, many of his customers have been disappointed, and may be disgusted, with the new incubator. I made a test myself after I returned from Florida, and succeeded in getting only 20 chickens from something over 100 eggs which were presumed to be fertile. As soon as Mr. Root discovered that the full-sized machine did not seem to work as well as the small one which he experimented with a year ago, he set about at once to find the trouble. Yesterday, May 24, I visited his incubator-cellar where he is making his experiments, and I feel satisfied that he has surmounted the difficulty with the machine as first made, and that, too, without any expensive changes. The chickens hatched by this new incubator are the brightest, stockiest, and cleanest I ever saw, either from an incubator or hen. The shells, after the chickens have emerged, are clean. The chickens dry off quicker than I ever saw chickens do it before in any other incubator, and they are the handsomest, strongest, and most nearly perfect chickens I ever saw. From one incubator containing, I think, 97 eggs pronounced fertile, he has hatched 73 chickens.

About ten days ago I decided to give one of these incubators another trial. So far it seems to be working all right. Only seven eggs, out of something over a hundred, proved to be unfertile, and nearly all the others show every evidence of making healthy progress. Let me give you a little incident that gives me great faith in the incubator.

About the time I started it we found a hen that stole her nest in the barn and came out with three chickens. One of the men found the nest and brought up to the house six eggs that had not hatched. When I found out about it, although the six eggs had been pretty well cooled off, I put them in the incubator, and in about two days a nice healthy fluffy chick hatched. In two days more another one came out, and so on through the six. These eggs were evidently laid by some other hen, every other day, in the nest with the sitting hen. That is why they hatched out every other day. This incident indicates that the machine hatches out nicely eggs that have been started by a sitting hen. It also indicates that you can put eggs in this sort of incubator every day, every other day, or once a week. Put the dates on the different shelves, and they will hatch out, and can be taken out as fast as hatched, and put into the brooder. You can put in duck eggs with the hen's eggs, and they will hatch out all right. Mr. Root has done this already. I believe that most if not all the incubator manufacturers say that the incubator must not be opened during the hatching. With this new machine (on a new principle) you can open your incubator as much as you please. In fact, it is practically open *all* the while. You can see exactly what is going on, and meddle with the hatch at any time and all the time. In fact, Mr. Root showed me a number of eggs that he had broken open, at the air-cell end, to see how the chickens got along. He afterward sealed them up with wax, and had them hatch out good strong chickens. Not only this, he took the top off from an egg and then took a half-shell from another egg, so as to cover the opening. The chick cut the shell in the regular way to hatch out, and I saw the wax cap, all perfect, after the chicken had come out of it.

Now, I should like to advise those who have purchased the Root incubator, but have not made of it a success, to hold on a little, and my friend Root will give you instructions showing how to use the incubator as successfully as any other incubator made; and he hopes, and I hope, they may prove to be even *more* successful. The A. I. Root Co. have no pecuniary interest in the machine nor in the patent on it; but as the machines are made in our establishment, of course we like to see them a success. We regret very much, just as Mr. Root regrets, that the machines were sent out before they had been most thoroughly tested.

AN EGG-TESTER THAT IS FAR AHEAD OF ANY THING ELSE IN THE MARKET.

I say this, friends, after having purchased almost every egg-tester I have seen advertised. When Mr. Root put in my hands an egg-tester which enabled me to see the pulsations of a chicken, its movements,* and to see it kick inside of the shell during almost all the stages of incubation, I was ready to swing my—*fur cap!* I had read in the books about

*A *healthy* chick will never stay in the brooder during daylight unless it needs warmth.—R. R. ROOT.

*After the above was submitted to Mr. Root he writes as follows:

"Chicks in the shell do not breathe with their lungs till they pip the shell, or sometimes they will break into the air-cell before pipping. If you have emptied an egg that had a live germ in it which had developed about ten days, you would have found that the entire inner surface of the shell was covered with blood-vessels, and the blood is purified by the air that comes through the pores of the shell. If these pores are closed, the germ will die in a very few hours. The writer has learned this by covering a number of eggs under different stages of incubation with a thin coating of lard. This, again, shows the necessity of allowing an abundance of fresh air to get to the eggs while under incubation."

I hardly need remind our readers that fresh air promises just now to be the salvation of a considerable part of the human race; and fresh air for chickens, we are beginning to find out, is just as important as for human beings; and it is not only fresh air after the chickens are out of the shell, but while they are undergoing the process of incubation inside of the shell; and this incubator gives the chickens constant accessions of air right through the whole process of incubation. No wonder they are so strong and lusty, with no deformities nor cripples.

being able to see the heart beat inside of the shell, but I had never seen it before. I have not time now to give you a picture of this egg-tester, but I think I can describe it so you can make one in a few minutes. Go to your grocer and buy a package of "cream of wheat." I think you can get it at any first-class grocery. Cut off one end, and then cut away the pasteboard (on one side) on a curve so as to come against your forehead. On the opposite side make a V-shaped opening to fit the nose; in fact, you want to fix this pasteboard box so it will come up tight and close around the eyes, nostrils, and forehead.* When put up against your face you have a dark box. In the opposite end of the box make, with a small-bladed knife, an oval opening. It should be just about the size and shape of a good-sized spectacle-glass. The egg is to be held up against this opening on the outside; but in order to have it fit tight against the pasteboard you want to paste around the opening a circle of dark-colored woollen cloth. The idea is to shut out every particle of light, especially any gleam of light that might get in around the egg; then if the light is cut off in the same way when the pasteboard box comes up against your face, you will have a little "dark-room." With this instrument you can tell whether a white-shell egg has the germ started, generally, in 48 hours. In 72 hours, or three days, you can tell very plainly. Point your egg-tester right toward the sun; or if after night, hold the egg near a strong lamp or electric light. It is, in my opinion, far ahead of any of the tin egg-testers sent out with incubators, and it ought to be made by some enterprising manufacturer fully as cheap as the tin ones or cheaper.

POULTRY SECRETS—HOW TO TELL WHICH HEN LAID THE EGGS.

Every poultryman wants to know which hen laid the egg without having to watch nests all the time. I have discovered and protected a system showing absolutely *which hen laid the egg.* You can feed your fowls in the morning, visit yards at night, and immediately recognize every hen that laid, and each individual egg. Remember you can be away all day and still have an absolute record of every hen in your flock. No guesswork, examination, nor catching hen. Any one can do it. Cheap to install, no expense afterward, and will last a lifetime. Get rid of the drones; breed from the heavy layers, and double your profits. Booklet telling how you can construct and operate this system sent prepaid upon receipt of $1.00. Endorsed by members of the Herndon Poultry Association. Address

M. F. HUTCHISON, Herndon, Va.

The above very taking advertisement is now running in several of the poultry journals. It is accompanied by a very pretty picture of a hen looking at the egg she has just laid. Of course my dollar went promptly for the great "secret;" but before I received it I had figured out that this man was going to have a little yard for every hen; and this little book, the size of a postal card, containing 12 pages, tells you that you are to make as many little dooryards, 4×6 feet, as you have hens. Each of these yards is to have a gate so the owner can get in and out, and in each gate is a smaller one, something like the picture on page 70, Jan. 15th issue. This little gate is on the trap-nest or bee-escape principle, so the hens can get in but not out. As the owner is not expected to get around until night to let his hens out of these little pens, each one has food, water, and a place to scratch. By the way (although he does not say so), this is an arrangement for hatching chickens with a great lot of sitting hens. Now, this is all very pretty, and it will work all right, without any question; but when you come to open a hundred gates, and shut them, just to get a single egg each day in each one of the little yards, you will conclude you have a pile of work on hand. In order to get the record without catching the hen, looking at her leg-band (as the advertisement states), you are to provide your hens with leg-bands of different colors. After you have exhausted all the colors, then give the rest of the hens two leg-bands or three with different combinations. Yes, *this* will work all right; but the man or woman or girl or boy who runs the institution will find there is work, without question. Our good friend Philo recommends a nice little poultry-house for every six hens; but this new arrangement needs a poultry-house and dooryard for every single hen in the flock. In fact, he says somewhere in the book that there ought to be a little bit of roof over the nest and part of the yard to protect the hens during a storm. On the last page he tells us if we are keeping 300 laying hens we shall *not* need to have 300 trap nests with dooryards, etc. We can take a hundred pullets at a time and sort out the layers, and in that way make up a flock consisting entirely of choice layers.

On the first page of the book the author says he will prosecute to the fullest extent of the law any person adopting his system without first buying the right. He does not give a copy of his patent, nor even mention a patent elsewhere. But I wish to say that, if the Patent Office has commenced giving a patent to everybody who invents a hen's nest with a little dooryard attached, it is a disgrace to that Department.

Perhaps I should mention that the book tells us we can save expense by having the dooryard only two feet high; but in that case we shall have to use a frame on top covered with poultry-netting 4×6 feet; and handling such a frame just to get one egg is about as much work as making a whole big gate so you can pass through. I know something about it, because I have operated such arrangements. The greatest objection I have found to the Philo system is the time occupied in opening and shutting so many doors; and this is where you have a house and yard with six hens. When it comes to having a house and dooryard for *each single hen,* I think I prefer to be excused. He says, however, in closing up, that the gain in twelve months, over the way poultry is ordinarily managed, would more than pay for the equipment in one year. But how about the expense of manipulating all this machinery?

*The stiff pasteboard shield attached to a common stereoscope illustrates about what is wanted.

OUR CHICKENS IN FLORIDA AFTER WE LEFT.

I told you on page 215, April 1, that I had been getting from 45 to 50 eggs a day from 70 hens during the past winter, and they were still laying at about that rate when we turned them over to a neighbor the last of March. I told him that removing to a new locality would probably check their laying for several days. It is also true that, after a lot of hens have been laying well all winter, even down in Florida, they usually slack up as warm weather comes on. Nothwithstanding this, my neighbor makes the following report:

Mr. A. I. Root:—I had very good luck with the hens and chicks so far until to-day, when I found two hens dead, one on the nest and one under the roost. I have not noticed any thing wrong, except that some of them seem to be getting too fat, and I missed two or three hens soon after I got them. I do not know where they went to; but, never mind. I got 1166 eggs in the month of April from them, and 1460 from about 80 hens of my own. They are not doing quite so well now. The price is 20 cts. yet.

I did not know of the experience you had with the yellow hen until I saw it in GLEANINGS, April 1, page 215, which my wife picked up over at Lamkin's after they were gone. I had just the same experience, only 18 instead of 25. She seems to be too big and clumsy. If you do not want her back I think I will sell her. It has been pretty hot here to-day, but only 90. The weather has been fine this spring—cooler than last year during April. J. E. STANTON.

Bradentown, Fla., May 17.

Now, 1166 eggs for April is slightly over 38 eggs a day on an average. As two hens died, a Buff Orpington was sitting, and one or two were lost, there were only about 65 hens to give the 1166 eggs. I have no idea why the two hens should die, and I have not much faith in medicine. If I am correct, the 65 hens are in a much smaller yard than they occupied on our place; and the best "medicine" I could suggest would be a larger yard, or, better still, let them run loose. We should, however, recognize that it is nothing very strange if a hen or two should die occasionally out of a lot of about 70. I suppose the Buff Orpingtons are usually good mothers. My advice regarding that particular heavy hen would be to use her up for a chicken pie. She always laid pretty well, except that she wanted to sit after she had laid fifteen or twenty eggs; and she was not very much inclined to give up when she got the fever.

TEMPERANCE.

CAN THE FEDERAL GOVERNMENT AFFORD TO CONTINUE TO BE A PARTNER WITH THE LAW-BREAKERS?

I copy the following from the *Chicago Advance*. As I understand it, the *Advance* does not commit itself on the subject further than to copy, without comment, from two other periodicals—the first the Springfield *Republican*, and the other the *Christian Work and Evangelist*, as follows:

THE GOVERNMENT NULLIFIES LOCAL OPTION.

Mr. Bryan's *Commoner* last week contained an editorial from the editor's pen that may compel the serious attention of the President and Congress of the United States. About half of this country now lies under local prohibition of the liquor traffic. One can travel from Cape Hatteras almost to the Rocky Mountains and not touch the soil of a State that allows liquor to be manufactured or sold. Many other States are half "wet" and half "dry," under local option. To that vast number of people who support State or local prohibition, Mr. Bryan's present attack upon the federal government for isuing federal licenses for the sale of liquor in places where State or local law prohibits it will strongly appeal as sound and just. Mr. Bryan thus states the case:

"In spite of the attempt of local authorities in these districts to prohibit the sale of liquor as a beverage, the federal government continues to issue licenses in contemptuous disregard of local sentiment and local law. The government receives $25 for each license, and in receiving the money it must either intend to collect that sum without giving any thing valuable in return (in case the one receiving the license does not sell liquor), or to encourage the one receiving the license to violate the local law, for he can not use his license without violating the law. Can the federal government afford to continue to be a partner with the lawbreakers? Can any party afford longer to legalize this partnership?"

The *Republican* continues:

The issue is put squarely up to Congress, and to the party controlling Congress, now that Mr. Bryan proposes "an amendment to the internal-revenue part of the Payne bill prohibiting the issuing of federal licenses for the sale of liquor in States, counties, or communities where the sale is locally prohibited." Why shouldn't his view be accepted as sound?

The *Christian Work and Evangelist* adds:

The United States government receives internal-revenue taxes from liquor dealers in prohibition territories. Very few liquor-sellers care to operate without paying the federal tax, for the national excise service has a long arm. In last week's *Commoner* Mr. Bryan called on the Democrats in Congress to amend the internal-revenue portion of the Payne bill so as to prohibit the issue of federal revenue-tax receipts in States, counties, or communities where the sale of liquor is locally prohibited. As Mr. Bryan says, the present system is calculated to cultivate disrespect for law, in that the federal government actually reaps a profit from the issue of licenses which stimulate lawbreaking. "Can the federal government afford to continue a partner with the law-breakers? Can any party afford longer to legalize this partnership?" With Mr. Bryan, we say no.

Our readers may be aware that I have for some time been considerably stirred up about this matter, and I confess that I have criticised our government rather severely; but after reading the above from the *Advance* I decided to submit it to the Superintendent and Attorney of the Anti-saloon League, and I am very glad indeed, for he not only gives us light on the whole matter, but suggests that the government may not be so *terribly* out of the straight and narrow path after all.

Dear Mr. Root:—The enclosed clipping is all right, but I have never agreed with one of the propositions presented in the statement. The parties who argue, as Bryan does, go on the theory that, if the United States government received no revenue from the traffic, we would be able to stop it. The fact of the matter is, that if the United States government does collect a tax it helps to prosecute the parties who sell. In other words—the fact that the parties pay the United States revenue tax is *prima-facie* evidence that they have violated law, and we use that fact in the local-option or State prohibitory laws. If the United States government were prevented from collecting this tax, these same parties would sell liquor, and we should have one less agency to secure evidence against them.

The courts have repeatedly held that the payment of the United States revenue tax did not in any way protect a liquor-dealer who sold liquor; and if he did sell in violation of any local option or State law, he must suffer the penalty therefor; and the fact of his paying the United States revenue tax could be used as evidence against him when he was prosecuted under these other laws. The $25.00 tax which the United States government receives from each local dealer is so small that I do not think it influences many people in voting wet on the ground that they get a large amount of money for the government in that way.

W. B. WHEELER.

Columbus, O., May 28.